PROBLEMS OF EMPLOYMENT AND MANPOWER PLANNING IN THE SUDAN WITH PARTICULAR REFERENCE TO THE AGRICULTURAL SECTOR

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May, 1978.

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ABSTRACT

The theme of this study is employment problems in the Sudan particularly its agricultural sector. The subject of employment in less developed countries is of considerable concern where it raises manifold issues. Some of these are outlined in the first chapter. Then an attempt is made (chapter two) to identify the dimensions of the Sudan employment problems and their possible causes. Data from different sources suggest a low rate of overall unemployment. In contrast to this seemingly favourable situation, pervasive underemployment in traditional agriculture is disclosed. In dealing with such a problem from the national point of view the tricky issue of combining growth with equity poses itself.

The treatment of employment in the Sudan development planning exercises was found to be seriously inadequate (chapter three). Employment was there viewed more or less as a by-product of economic development. The implicit strategy of growth maximisation seems to have accentuated dualism between modern and traditional economies within agriculture.

With a population about 15 million in 1973 and an average density of six persons per square kilometre, the Sudan may have seemed to be free from any threat of overpopulation. Demographic data are considered in chapter four in order to investigate various population problems related to growth, composition and distribution.

The following two chapters lead on to an examination of the labour force, three-quarters of which has been engaged in agriculture. An apparent abundance of labour supply in the country as a whole is difficult to reconcile with the acute and costly seasonal manpower shortages experienced in modern agriculture.

Migration and seasonal labour mobility may thus be crucial to combining growth with equity. Possibly for the first time as far as the Sudan is concerned, labour migration is here empirically studied from the point of view of the sending areas. Besides the demographic structure of sample rural areas, observations related to earnings and productivity in traditional sector are considered.

Finally the threads of the preceding themes are brought together, summarising the findings and putting them into perspective. A few suggestions for further research are indicated.

ACKNOWLEDGEMENTS

This study has been carried out while I was in receipt of a scholarship from the Sudan Government. So my first duty is to give full acknowledgement of this opportunity and to thank all the Sudanese work-force who in spite of their low incomes shouldered the expenses of this study.

I am deeply indebted to my supervisor, Dr. A.K. Selby, for his experienced supervision, constructive criticism and competent guidance throughout this work. In spite of his crowded time-table and his multivarious engagements he had been always available for consultation for long hours; for this he deserves no less than sincere thanks.

I must also express my thanks to Dr. Mohamed El-Awad Galal El Din of University of Khartoum and Dr. B.M. Mahajan, the United Nations expert for Demographic and Economic analysis of Sudanese Census of 1973 for their invaluable technical advice.

To the ILO I am indebted for a grant enabling me to cover the cost of part of the field work and that of the computer. I am grateful to all those who have discussed with me many of the points raised in this research and in so doing, have helped me to clarify and, in some cases substantially to change my earlier views. Mention must be made of many officials and friends in the Ministry of Agriculture, in the Department of Labour, the Department of Statistics, the Gezira scheme, the Rahad project and University of Khartoum.

I am greatly indebted to all the interviewers and supervisors who took part in the survey. Acknowledgement should also be extended to Mohamed El Hassan Sadig of the Statistical Laboratory, the Computer Centre, University of Khartoum for his assistance in the processing and tabulation of the relevant data for the analysis.

I also wish to express my deep appreciation to Sayed Ali Numeiry, Ahmed Sowar, Mohamed Ali Abdel Rahman and Abdel Rahman El Hag for their constant encouragement. Thanks should also be extended to Miss Martin for typing this work.

Last but not least my deepest gratitude to my wife, Awatif for providing inspiring and conducive atmosphere throughout the study period.

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CHAPTER 1

INTRODUCTION

1.1 Statement of the Problem and Objectives

Considering the importance of employment in economic development, it is pertinent that such a subject is investigated. This study is an attempt in that direction. Thus, the main aim of this study is to focus attention, so far lacking, on employment problems in the Sudan with particular reference to its agriculture. Although studies have been made focussing on the employment situation in urban areas, no comprehensive study has been made in agriculture. The little interest that does exist is confined to the problem of open unemployment. This is an unfortunate state of affairs since under-employment and poverty may be just as important (if not more so) as unemployment.

However, it is not difficult to understand why the study of the employment situation in agriculture has remained a neglected area. The main reason, perhaps, is the data problem. Data on manpower in agriculture is very often non-existent and there is considerable doubt about the reliability of the little data that does exist.

The second reason for the relative neglect of employment problems in agriculture is that unlike the unemployed, the underemployed and the working poor in rural areas cause relatively less threat to the government. The urban unemployed are thought to be better informed than the rural poor, more conscious of their relative position in society, and more easily able to organize in defence of their own interests. Moreover, the theories of underemployment and income distribution are still in the process of refinement. Therefore, until the theoretical and empirical frameworks are satisfactorily developed, studies of employment problems in agriculture remain an unattractive field. These and other factors are strong hindrances in the way of the study of employment problems in agriculture. But considering the relative importance of agriculture in Sudan's economy, it is imperative that an attempt be made towards understanding its employment problems. This study is hopefully meant to be one such attempt.

Recently policy makers in the Sudan, as in many other less developed countries, have been clearly concerned with growing problems of employment and are taking steps to deal with the most obvious of these problems. However, the objective of this study is a limited one. We set out to examine a few hypotheses that have been suggested and

in some cases to formulate alternative hypotheses that may be more appropriate. It is proposed to examine the employment situation in the Sudan. If the 'employment situation' were a matter of open unemployment, there would be no serious employment problems in the Sudan. But in contrast to this relatively favourable situation, there are other more serious employment problems such as underemployment, low income and seasonal labour shortages in agriculture. Examination of data from different sources supports the above hypothesis. Unemployment seems negligible in rural areas and low in urban areas compared with many other less developed countries.

However, most of the employment problems in the country are aggravated by government policies. Its employment policies attract too much labour seeking relatively well-paid jobs in urban areas, resulting in unemployment. Moreover, its investment policies have been biased against the traditional sector, causing inequalities in income distribution. In Chapter Three of this study, various government policies, programmes and plans are reviewed. In most of them the traditional sector has been ignored.

The literature on the Sudanese economy abounds in reference to the problem of severe shortages of labour in peak periods of the agricultural cycle. It is argued

that there will be more severe seasonal labour shortages when certain proposed irrigation projects (such as Suki, Rahad and Kenana) come into production over the next few years. In an effort to examine this issue, a manpower forecast of monthly labour requirements for a large variety of crops in each province up to 1985 was conducted. This was compared with the available labour supply in each province. The exercise as a whole lent little support to the thesis of chronic labour shortages for the country.

However, the abundance of total labour supply proves nothing about its availability in certain regions at the right time. This would need the labourforce to be mobile. In testing the elasticity of labour supply in traditional agriculture, labour was found to be willing to migrate to participate in seasonal work in modern agriculture given higher wages and lower transport costs.

The bulk of the data in this study concerns the agricultural sector. The choice of this sector was apposite for a number of reasons. It has been given priority in the country's overall development strategy, has been growing rapidly and holds out promising prospects for employment, growth, better income distribution, more balanced economic development and increased foreign exchange earnings. Moreover, it is this sector that has suffered most severely from labour shortage, under-employment and low incomes.

The data problem is particularly serious in studies of employment in agriculture. As was argued earlier, this partly accounts for the lack of such studies. However, unless the limited available data is used no insight into the gravity of the problem will be gained. Therefore the justification of using the inadequate data that exists is that any pioneering work must start somewhere. Data from different sources was checked and double-checked. In addition a survey was conducted to provide more information about employment problems in rural areas. The survey also sought to achieve a better understanding of the various socio-economic factors affecting employment in agriculture, which it was hoped would assist in the formulation of employment-oriented policy guidelines for agriculture.

This work is mainly a study of some aspects of the employment problems in the case of the Sudan. A serious limitation here is that the results may apply only to the particular case under consideration. However it is hoped that the results would be of some more general interest to some other countries.

1.2 The Nature of Employment Problems in Less Developed Countries

Despite the new emphasis on employment and income distribution in less developed countries and despite the considerable amount of theoretical and empirical work recently undertaken on employment problems, there is

little consensus on the definition of employment problems, their significance, their causes, and features of the phenomenon. However, difficulties of measurement and definition should not lead one to ignore the problem, particularly as various studies suggest that it is both large and of growing importance.

In more developed countries, a major cause of under-utilization of labour may be a deficiency of aggregate demand, leading in turn to inadequate job opportunities and involuntary idleness for a section of the labour force qualified and willing to work. In less developed countries, there is a range of employment problems and a wide range of causes.* It is a matter of insufficiency of work opportunities for self employment, of under-utilized labour resources, of low -productivity employment and of high job-aspirations, particularly among the young and educated. The definitional issue is complex because unemployment in less developed countries does not only take an 'open' form, i.e. workers seeking employment at job centres. The concept of "seeking work but unable to find it" during a specified period of time, might not be very useful when applied in less developed countries where many in the labour force are either self-employed

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*R. Jolly et. al. (eds.) "Third World Employment Problems and Strategy." Penguin 1973.

or "unpaid" family workers.

However important, unemployment is not the whole problem. In many less developed countries seasonal unemployment and disguised unemployment are found in the largest two sectors of the economy, namely agriculture and services. The seasonal nature of agriculture causes underemployment of labour during certain periods. Underemployment takes a variety of forms. It may not be easily isolated as a self-contained phenomenon with clear-cut features, nor can it always be attributed to independent causes. It has to be seen as an integral element of an economic, social and institutional context characterized by structural imbalances and rigidities, market distortions, lack of complementary resources to labour, and in many instances by widespread poverty.*

Closely related to the problem of employment is the question of income distribution both in the sense of the share of income which different groups of the population receive and in terms of the proportion of the whole population living on or close to the margin of bare

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* R.E. Mabro, "Employment, Choice of Technology, Sectoral Priorities." Paper read in a Seminar on Manpower and Employment Planning in the Arab countries, organized by the United Nations Economic and Social Council - Beirut 12th - 24th May, 1973.

subsistence.* In many less developed countries a very large proportion of the active labour force has an inadequate income by any standards, and this proportion is considerably more than that of the unemployed or underemployed. Poverty therefore emerges as the most compelling aspect of the whole employment problem. In fact, the problem of poverty is so central that any adequate analysis of employment problems must not ignore the consideration of income and income distribution. Income distribution can affect the level of employment, mainly through its effect on the pattern of consumption, in two ways. The first is through the different import content of the expenditures of the rich and the poor; the second is through the direct labour content of those expenditures.**

Planners in many less developed countries have often thought that the attainment of reasonable rates of growth would automatically produce productive employment and hence a wide distribution of benefits. However, the experience of the last two decades has disappointed such an expectation. Although many countries succeeded in

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* J. Mouldy and E. Costa, "Employment Policies in Developing Countries - A Comparative Analysis." Published on behalf of I.L.O., London 1974.

** I.L.O. "Towards Full Employment, A Programme for Colombia." Geneva 1970 - PP. 139 - 51.

achieving considerable rates of growth, the employment problems remained serious.* Frequently, they deteriorated. As a result the governments of a few of these countries have become deeply concerned with the problem of creating constructive employment opportunities for their rapidly growing populations. As governments have become aware of this, they have turned to a number of sources, internal and external, for analysis and advice. One notable activity has been that of the International Labour Organization's Employment Programme, through which sizeable short-term missions have been sent to Colombia, Sri Lanka, Iran, Kenya, Philippines and the Sudan, with the express purpose of making recommendations for dealing effectively with the employment problems in these countries. In every case the missions have been induced by the pervasive nature of the problem to undertake sweeping re-evaluations of the entire economic policy spectrum. The problem of generating more employment opportunities in these countries has involved a substantial redefinition of appropriate development strategies. An attempt has been made to assign employment to a central position in development planning, rather than see it as a mere by-product.

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* W. Galenson, "The Employment Problems of the Less Developed Countries : An introduction in Essays on Employment." I.L.O. Geneva 1971.

1.3 Review of the Literature

The concept of employment has perhaps proved to be one of the most vulnerable. Even defined in so relatively sophisticated manner, the concept of employment (and associated concepts such as full employment, unemployment, underemployment and economically active population) is still manifestly ambiguous and subjective in several respects.* In the last two decades the literature of economics has approached the problems of employment in less developed countries in two main ways: by constructing formal models, and by empirical analysis.

Probably the most well known of the employment models is that of Arthur Lewis**, which is concerned with the transfer of labour from rural to urban areas, or more accurately from the subsistence to the capitalist sector. In the model, the underdeveloped economy comprises two sectors - the traditional agricultural subsistence sector characterized by surplus labour, and the industrial

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* Jean Mouly, "Employment : A concept in need of renovation" International Labour Review Vol. 116, No. 1 July-August 1977 - PP. 1 - 7.

Also see Jean Mouly, "Some remarks on the concepts of employment, underemployment and unemployment." International Labour Review Feb. 1972 - PP. 155 - 160.

** Lewis, W.A. "Economic development with unlimited supplies of labour." Manchester School, Vol. 22 - PP.L 39-191 1954

Also see Lewis, W.A. "Unlimited Labour : Further Notes" Manchester School Vol. 26, PP.1 - 32.

capitalist sector into which labour from the subsistence sector is gradually transferred. The model makes two key assumptions. First, it assumes surplus labour in the rural areas and rising demand for labour in urban areas. Secondly, the model assumes constant real wages up to the point where surplus labour in the rural areas nearly disappears. Both the transfer of labour from the traditional sector and its absorption in the modern sector take place at a rate which is determined by the excess of profit over wages, provided that the capitalists re-invest the entire surplus. The level of wages in the industrial sector is assumed constant, fixed as a proportion of the subsistence level of wages in the traditional sector. As the transfer of labour proceeds, unemployment and underemployment in rural sector would be reduced as employment in the urban sector increases.

However, empirical evidence from less developed countries shows that the two main assumptions of the model do not necessarily hold.* First, in many less developed countries considerable urban unemployment could exist and the surplus in rural areas may be largely seasonal; and it is doubtful whether this surplus could be removed

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* Fei, J.H.C. and G. Ranis, "Development of the Labour Surplus Economy : Theory and Policy." Irwin 1964

Also see Reynolds, L.G. "Economic Development with Surplus Labour : Some Complications." Oxford Economic Papers Vol. 21 No. 1 - 1969.

without a drop in agricultural output. Secondly, urban real wages grow both absolutely and relative to rural living standards even when unemployment exists.

In the Lewis model the mechanism of labour transfer lies in the certainty of finding jobs in urban areas. Recently Todaro* has developed a model which formalizes the individual's decision to migrate as a function of the expected gains from migration, which are measured by the difference in real incomes between rural and urban jobs and the probability of a new migrant obtaining an urban job. However, his model can be criticized for assuming a too simple and exclusively economic motivation for migration.

The second type of employment model is that which focuses on the growth of output and employment. This model is mainly a variant of a basic Harrad-Demar model with a greater emphasis on employment rather than output. This is the kind of model most commonly used both in planning the rate of economic growth required to absorb the forthcoming additions to the labour force, and in

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* M.P. Todaro, "Income expectations, rural urban migration and employment in Africa." International Labour Review Vol. 104, 1971 - PP. 387 - 413.

Also see Harris, J.R. and M.P. Tadro, "Migration, Unemployment and Development, a two sector analysis". American Economic Review May 1970.

calculating the size of the unemployment gap if such growth is not achieved. Employment growth is related to output either by assuming constant labour-output co-efficients or by incorporating productivity assumptions in which the output-labour co-efficient increases, often steadily and usually exogenously over time. The growth of employment is then essentially a function of the level and change in productivity, the rate of saving and the capital-output ratio.

The third type of model is concerned with factor price disequilibrium, particularly the price of labour in relation to capital, land and other resources. A good deal of work has made use of this approach by analysing the effect of factor price disequilibrium on different production functions, showing how in the static case either factor price disequilibrium or limited possibilities for efficiently substituting labour for capital or both could cause the labour market to fail to clear itself and result in open unemployment.*

Problems of employment in less developed countries have also been tackled empirically. Attempts have been made to study causal relationships and institutional factors in different parts of the world. According to these studies important differences exist in the employment problems experienced and in the interpretation

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* Echaus, R.S. "The factor proportion problem in under-developed areas." American Economic Review, Volume 45, 1955 - PP. 539 - 65.

of causation. In Ceylon unemployment among the educated has been seen as the dominant part of the problem.* In the Sudan the emphasis has been on underemployment and poverty in traditional sector and shortages of labour in some areas of modern agriculture during harvest periods, rather than open unemployment.** In Colombia the highly unequal system of land tenure has deprived a large proportion of the rural population of land and income.*** In Kenya the fundamental employment problem is how to promote greater equality among regions and individuals with regard to incomes, education and land use.**** In the Philippines the major employment problem is how to achieve a consistently better performance as regards employment and the distribution of income without sacrificing economic growth.*****

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* I.L.O. "Matching Employment Opportunities and Expectations. A programme of action for Ceylon." Geneva 1971.

** I.L.O. "Growth, Employment and Equity - a comprehensive strategy for the Sudan." Report of the I.L.O./U.N.D.P. Employment Mission. Geneva 1975.

*** I.L.O. "Towards Full Employment ..... op.cit.

**** I.L.O, "Employment, Income and Equity, a strategy for increasing productive employment in Kenya." Geneva 1972.

***** I.L.O. "Sharing in Development, a programme of Employment, Equity and Growth for the Philippines." Geneva 1974.

The empirical studies often involve aspects of employment problems beyond those treated in the theoretical models. Hardly any of the theoretical models have explicity considered income distribution and most of them draw a sharp dichotomy between employment and unemployment, in contrast to empirical studies which stress the importance of low incomes. The International Labour Organization has encouraged much theoretical and empirical work on problems related to employment in less developed countries.

1.4 Employment Problems in Sudan's Agriculture

The Sudan has a considerable agricultural potential. It has a total estimated arable land area of 200 million feddans,* of which only about eight per cent was utilized in 1975, with only four million feddans under irrigation.** In addition to the reserves of water to be exploited in the White and Blue Niles, the country has a great potential to exploit the rainfall belt stretching from Kassala Province in the east to Darfur Province in the west.

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* A feddan equals 0.420 hectares or 1.038 acres.

** The Democratic Republic of the Sudan, Ministry of Agriculture, Food and Natural Resources. "Year Book of Agricultural Statistics 1974." Dept. of Agricultural Economics - Khartoum June 1974.

The agricultural sector has played a dominant part in the Sudan's national economy. The importance of this sector stems from the fact that the major flow of GDP originates in agriculture. National income accounts, for instance, show that 38.2 per cent of the GNP was generated in this sector as against 61.8 per cent in all other sectors in 1972/73. In 1974 it constituted over 95 per cent of exports and contributed directly and indirectly over 50 per cent of government revenues. This is likely to continue for many years to come. Even a moderate growth rate in this sector is likely to be significantly reflected in the overall growth of the economy whereas a relatively higher growth rate in the industrial sector would have a lesser impact.

The agricultural sector provides income and employment for the vast majority of the population. According to the 1955/56 population census, more than 85 per cent of the labour force were engaged in it, the corresponding figure for the 1973 census being 72 per cent. In spite of this declining proportion, there has been a considerable increase in the absolute numbers employed. This is going to pose a problem of finding sufficient productive work for these rising numbers.

By far the largest proportion of those who leave the land end up in the services sector. Much of this is precarious low-productivity self-employment.

Agriculture in the Sudan is characterized by the existence of dualism. The modern 'sub-sector' is characterized by the use of modern techniques of production, high productivity and incomes, and seasonal labour shortages, while the traditional 'sub-sector' is characterized by the existence of seasonal unemployment, low incomes and use of traditional techniques of production.* The majority of the rural population of the country seem to be engaged in the traditional sector: some estimates have put the figure at about 10 million persons in 1975. Traditional farming is one of the occupations with the lowest income in relation to hours of work performed, and any attack on extreme poverty must include measures to raise agricultural incomes. As a result of the long dry season, productive work is difficult during part of the idle periods in certain areas. Approximately one million persons move long distances each year from traditional to modern agriculture simply to raise their incomes. Recently the cost of movement has substantially increased due to rises in price of petrol. The effect of this is

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* The modern sector contributed LS 243.6 million and the traditional sector LS 232.5 million in 1968/69 to the G.D.P.

likely to make seasonal migration less attractive unless certain measures are taken to subsidise transport costs for the migrants.

As regards the employment aspect, this is extremely difficult to measure on account of the sharing of work among family members and the great variations in intensity of work at different seasons of the year. It is the agricultural sector in the Sudan where employment problems are expected to be serious. The problem of labour shortages in the country and under-employment and low incomes are more serious here than in any other sector. In addition, it is this sector which has a great potential to provide jobs for future increases in the labour force.

1.5 Basic Statistics in the Sudan

Despite the fact that the Sudan is one of the least developed countries, it represents in relation to availability of basic statistics an exceptional case. Some important data about the economy, population, labour force and national income were collected at a relatively earlier stage than is the case in many other less developed countries. The first population census was conducted in 1955/56 and the first scientific study of the national income was made in the same year. A more advanced census based on the United Nation's definitions and classifications of labour force was

also conducted in 1973. In the inter-census period a few regional surveys were made in some parts of the country.

Since information from these sources constituted an important input in our study, it may be useful to give the reader some idea about these sources. In particular, some comments will be made about their purpose, methodology, concepts, coverage and degree of accuracy.

1.5.1. The 1955/56 Population Census*:

At the time of the census the country was administratively divided into nine provinces, with each province subdivided into districts. For census purposes, some districts were further divided into census areas, depending on the estimate population of the district. In all there were 94 census areas within the basic census frame.

Due to the migratory habits of nomads and the climatic conditions of the country, it was quite impossible to hold the enumeration in all census areas

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* Democratic Republic of the Sudan: First population Census of Sudan 1955/56. Final Report Volume 1. III Dept. of Statistics, Khartoum 1962.

simultaneoulsy. For this reason the de jure process was adopted.* Therefore, it was likely that some people were either missed or double-counted.

The sampling method used was multi-stage ratio sampling. The first stage units were omodias, the second sheikhdoms and the third households.** In the second stage, sheikhdoms in an omodia were classified according to (a) order of magnitude of total inhabitants (b) percentage of nomads and (c) type of animal resources.

Out of a total of 29,096 sheikhdoms in the country, 7,182 were selected for enumeration. The sampling technique adopted resulted in the selection of 171,442 households to be enumerated out of an estimated total of 1,878,152 households.

In the context of the census accuracy it will be useful to refer to some comments made by Bhate, a

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* In the de jure process, persons are listed according to their usual place of residence.

** Each of the nine Provinces of the Sudan was composed of four to nine districts administered by district commissioners, under whom are omdas governing omodias. Under the omdas are sheikhs ruling sheikhdoms i.e. group of households whose heads are followers of the Sheikh.

United Nations advisor to the census department.*

1. In a country where family ties are very strong and joint families predominate, a 'de jure' census tends to produce overestimates (due to double counting).
2. The census also showed inexplicable variations in birth and death rates in the country, producing a rate of growth of 3.3 per cent which is obviously an overestimate.

1.5.2. The 1964/65 Agricultural Census:**

The purpose of the survey was to collect information on the distribution of agricultural lands by size and type of tenure in the Six Northern Provinces. The form of tenure was classified into ownership possession, tribal land and hired land. In addition the survey gives the composition of holders' households by size of holdings. Moreover, data was collected about the working members of households, with further classification into those doing farm and non-farm

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* Bhate, "Some notes on the Growth of the Population in the Sudan and the First Census of Population in 1955/56." Unpublished paper presented to a conference on population. Khartoum 1974.

** Dept. of Statistics' Agricultural Census - 1964/65.

work. It also gives the participation ratio for both sexes in rural areas, excluding the nomads. In the absence of any information about the methodology of the study it is difficult to comment on the accuracy of data collected. However, the results of the survey have been very useful for agricultural planning.

1.5.3. Population and Housing Survey:*

The purpose of the survey was to obtain demographic and housing data on urban areas to update the 1955/56 census data. Out of 90 localities included in the survey, 82 were classified as towns. The survey covered all urban areas separately enumerated in the census of 1955/56. In addition, localities with more than 5,000 inhabitants and those with administrative and commercial importance were investigated.

The sampling method adopted was simple cluster sampling with the sampling procedure varying between different parts of the towns. In the case of unavailability of good sampling frames, the sampling procedure was carried out in the field. The sampling frames were usually the tax-paying units or land registers.

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* Democratic Republic of Sudan 'Population and Housing Survey' General Survey of Urban Areas. Department of Statistics, Khartoum 1968.

The above sampling method, however, is likely to underestimate the results since tax and land registers are not always up-to-date. In addition, because of the weak sampling frame, the data give only a general picture of the situation. Hence the results have to be interpreted with caution.

In spite of this, projecting data of total urban population backward to 1955/56 and forward to 1973 indicated they compare well with the results of both censuses. The economically active population comprised all persons above 8 years of age who furnished labour for the production of economic goods and services. It included both employed and unemployed, the former consisting of all persons who were working or had jobs at the time of the census. The unemployed comprise all persons who during the time of the survey were not working but seeking work for pay even if they had never worked before.

1.5.4. The 1967/68 Household Sample Survey:*

The purpose of the survey was to provide detailed information on levels of income and expenditure of households in different areas. In addition, it provides some information about the labour force. It was mainly

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* The Democratic Republic of the Sudan: Household Sample Survey in the Sudan 1967/68. Pattern of Income Distribution - Dept. of Statistics, Khartoum August 1976.

designed to estimate income and expenditure in rural, semi-urban and urban areas of the six Northern Provinces. 11 towns with population more than 35,000 were included under urban areas, while all other towns defined in the 1955/56 census were treated as semi-urban areas and all other areas as rural.

In addition to information about income and expenditure the survey revealed information on household composition, levels of education, and economic activity by occupation, sector and status. Information on population, labour force and employment were presented in the form of percentage distribution. For the purpose of the survey the economically active population was defined as consisting of all persons, regardless of age, who use labour for the production of goods and services, including both employed and unemployed persons. The employed included family workers.

The unemployed but previously employed consisted of all persons who during the previous month had no work but were seeking work. Persons not looking for work at the time of the survey because of minor illnesses or because they were on temporary lay-off were also included among the unemployed. First-time job seekers were also considered as economically active.

However, the survey was the first of its kind

carried out in the Sudan. Previous data on household income and expenditure was very meagre and the few surveys carried out in the country related to a few selected areas and covered only certain categories of the population. The survey results provide very useful information for planners when considering the sources of household income, the regional disparities in income distribution and the pattern of consumption in rural, semi-urban and urban areas.

1.5.5. The 1973 Population Census:*

The 1973 census was conducted by the Department of Statistics supported by the United Nations Fund for population activities. It encompassed both the stock and flow aspects of the country's population. The former brings out size and structure of population at the time of the census while the latter discloses demographic processes relating to births, deaths and migration. In addition, information on some housing characteristics of the population was also obtained. The census provided the core data for the formulation of the government's new Six Year Plan (1977/78 - 1982/83).

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* The Democratic Republic of the Sudan, Ministry of Finance, Planning and National Economy "Second Population Census, 1973", Department of Statistics Khartoum, Jan. 1977.

In addition to certain identification particulars, information on marital status, nationality, place of birth, educational status, number of children and housing conditions was obtained. Moreover, for the first time the country's labour force was classified according to the United Nations classification, namely by occupation, sector of activity and employment status. The 1973 census was conducted on a complete enumeration basis inasmuch as identification particulars related to the whole population of the country. This distinguishes it from the 1955/56 census. Further, while the 1973 census was taken on a de facto basis, that is, the persons were enumerated at the place where found on the census night, that of 1955/56 was carried out on a de jure basis.

According to the census definition, the economically active population comprised employed and unemployed, including those seeking work for the first time. A person was considered unemployed if for the most of the time during the twelve months before the census date he had not been working but seeking work for pay or profit, including those seeking work for the first time.

1.6 Conclusion

It may be worthwhile at this point to see where this introductory chapter had led. Unlike the case in developed countries, employment problems in the less

developed countries have a number of dimensions, many affecting much larger proportions of the labour force than did open unemployment. The causes of employment problems in less developed countries seem to be very broad, much more than simply inadequate demand.

In moving from the current economic models to empirical analysis, the approach to employment problems has been broadened in a number of respects. Conceptually, employment problems have been greatly expanded to include problems of income distribution and poverty as well as underutilization of labour.

Most of the Sudan's employment problems are expected to be concentrated in its agriculture. In the country the potential for growth in agriculture and related activities is large. This places the Sudan in a favourable situation compared with many other less developed countries in terms of employment and income generation.

However, agricultural development in the country has been characterized by a marked dualism between high-income irrigated and mechanized rainfed agriculture on the one hand, and low-income, traditional agriculture and livestock on the other. This dualism has contributed to pronouncedly unequal development between regions.

Before commencing to go through this study it is

perhaps necessary to anticipate briefly the rest of the thesis. In chapter two an attempt is made to measure quantitatively the dimensions of the employment problems in the Sudan. In spite of the shortage of manpower statistics, the available data support the hypothesis that underemployment and poverty rather than open unemployment are the main employment problems facing the Sudan at present. However, most of these problems are caused by the past development strategies. Such strategies, as examined in chapter three, were exclusively seeking a higher rate of growth as the main objective. To achieve this, efforts were made to concentrate investment in the modern sector.

Chapter four has been devoted to the growth and distribution of the population in the Sudan. In addition to growth, the composition and mobility of the country's population and its distribution between rural and urban areas is discussed. The extent of its pressure on land is critically examined and compared with some other countries in Africa.

Chapters five and six deal with the country's labourforce. Chapter five presents an analysis of the labourforce and classifies the working population according to industry, occupation and employment status. It also considers the sectoral distribution of the labour-force. Chapter six deals with labour in agriculture.

In particular it examines the hypothesis that the country will face acute labour shortages in modern agriculture when the new government projects in its development plan start production.

Chapters seven, eight and nine are largely empirical in content. The analysis, mainly based on limited case studies, justify more fully the hypothesis that the labour shortage in agriculture is not absolute and that labour from traditional agriculture will be willing to migrate for seasonal agricultural work at higher wages. Further they analyse and discuss earnings and income differentials between rural and urban areas as well as within agriculture.

The last chapter contains a brief summary of conclusions. This is followed by consideration of some inferences for policy that can be drawn from these conclusions with regard to employment problems in the country.

CHAPTER 2

Characteristics and Dimensions of Employment Problems in the Sudan

2.1 Introduction

As mentioned before, important differences exist in the experience of 'employment problems' and the interpretation of their causes between different countries. For many less developed countries characterized by 'surplus labour', unemployment is the main employment problem. In Africa urban unemployment is a serious problem. Because open unemployment seems serious in many parts of the world, many theoretical models and empirical analyses approach the 'employment problems' as simply a problem of unemployment. However, in this study the 'employment problems' have been broadened and expanded to become as much a problem of income distribution and poverty as of under-utilization of labour. The main purpose of this chapter is to identify the magnitude of different employment problems in the Sudan and to identify their causes.

If the 'employment situation' were a matter solely of open unemployment, there would be no serious employment problem in the Sudan. However, in contrast

to the relatively favourable situation in respect of open unemployment stands the fact of pervasive under-employment in the agricultural sector. The agricultural workforce, which comprises two-thirds of the total, is substantially underemployed on a seasonal basis and hence many people have to migrate long distances each year in order to raise their incomes. The purpose of this chapter is to examine this hypothesis on the basis of data available from different sources. In the first part we deal with unemployment in the country, its extent and causes. In the second part problems of underemployment, low incomes and inequalities in income distribution is discussed.

2.2. Unemployment

2.2.1. Definition:

Before we try to identify the size of unemployment in the Sudan, we need to define it, since the size of unemployment will be largely determined by its definition. Most of the definitions used in surveys and in the census of 1973 were based on the definitions recommended by a United Nations team of experts. The purpose of adopting these definitions was mainly to enable the analyst to make international comparisons, by ensuring consistency between the country's statistics

and those of other countries. According to the United Nations' definition* 'The unemployed consist of all persons above a specified age (generally 15 years) who on the specified day or for a specified week, were in the following categories:

(a) Workers available for employment whose contract of employment had been terminated or temporarily suspended and who were without a job and seeking work for pay or profit.

(b) Persons who were available for work (except for minor illness) during the specified period and seeking work for pay or profit, who were never previously employed or whose most recent status was other than that of employee, or who had been in retirement.

(c) Persons without a job and currently available for work, who had made arrangements to start a new job at a date subsequent to the specified period.

(d) Persons on temporary or indefinite lay-off without pay.

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* I.L.O. "Measurement of Unemployment, Concepts and Methods." Report No. 14 - 11th International Conference of Labour Statisticians, Geneva 1960 PP. 9 - 26.

Also see R.G. Ridker and H. Lubell, "Employment and Unemployment problems of the Near East and South Asia." Volume 1, P. 275, New Delhi 1971.

It is, however, doubtful whether these definitions are suitable when applied to the case of the Sudan, one of the least developed countries. Particularly, membership of the labour force is sensitive to changes in general economic conditions. Many persons not now seeking work would surely do so if the demand for labour rose. In less developed countries such as the Sudan where the rate of employment creation is relatively low, the subjective probability of obtaining employment is very low, and hence, many persons will not be actively looking for work. Therefore, the measurement of unemployment on the criteria of "seeking or looking for work" might not be sufficiently realistic in such situations.

One can find numerous examples which show that some of the definitions, and consequently some of the questions used in the census and surveys, were not suitable to the social and economic structure of the country. Let us take, for example, the case of a man who sells cigarettes in the informal sector. He may be at work for the whole day, but he might be selling nothing or very little. According to the definitions adopted in the census and surveys, "employed" and "own account worker" instead of "unemployed" would be entered against his name on the questionnaire. Moreover, 'unpaid family workers' not at work and not seeking work for pay or profit are not considered to

be unemployed. Such category of persons constitutes a negligible part of the labour force in developed countries but they may be substantial in the case of the Sudan, and hence their exclusion from the unemployed will underestimate the size of the unemployment problem. Such underestimation is due to the fact that the definitions given by the United Nations have been used without any alterations to make them more applicable to the conditions described.

Despite these difficulties of definitions and concepts, it is important that we have a picture of the open unemployment, for the unemployed are commonly thought to constitute a greater threat to social stability than the partially unemployed. But it is important to consider the available data with adequate caution.

2.2.2. Unemployment Problem in the Sudan:

As mentioned in the previous section, unemployment in the traditional sense in which the word is used in the industrially advanced countries is difficult to measure and assess in the Sudan - as in many other less developed countries. This is because, among other reasons, there is no national scheme for the registration of the unemployed. More importantly, however, the present estimates of unemployed may not include many who would have registered as unemployed if unemployment benefits had existed. The definitional aspect and the

absence of unemployment benefits are expected to underestimate the extent of unemployment problems in the less developed countries. However, we believe that the rate of unemployment is much lower in the Sudan than in many other less developed countries.

Between the 1955/56 and 1973 censuses there were three regional surveys conducted in the Sudan by the Department of Statistics.* Although these surveys provide information on unemployment statistics, they widely differ in their concept, definition and coverage and none of them covered the whole country.

The earliest nationwide estimate of unemployment was that of the 1955/56 census. It identified a category of "unemployed and beggars" under "main occupation" which constituted 1.1 per cent of the labour force. In addition there was an additional figure of "unemployed and beggars" classified under "subsidiary occupation". The percentage of the labour force which was unemployed increased to 1.7 per cent, or 1.2 per cent of total population. At that time, the size of the labour force, defined as all persons productively engaged whether full time or part time, was close to five million or about 48 per cent of the total

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* See Chapter 1.5 - Basic Statistics in the Sudan

population. The rate of unemployment at that time varied between males and females. It ranged from 0.2% for boys and girls between 5 and 11 to 1.1% for adult males and 11% for adult females. The census*, however, did now show different rates for different regions of the country.

According to the 1964/66 population and housing survey,** the total number of the unemployed persons was 6,500 or about 1.5 per cent of the labour force. However, the percentage was lower for semi-urban areas but it increased to 4.1 per cent for urban areas with more than 35,000 persons and to 5 per cent for the capital city of Khartoum. It seems likely that the survey considerably underestimated the unemployed as it was based on the de jure sample (i.e. the permanent household members) and therefore many of the unemployed migrants might have been considered merely visitors.

In 1965/66 there were about 11,000 persons registered as unemployed with the Greater Khartoum Employment Office.*** One-third of these were school

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* The 1955/56 census, Town Planners Supplement, Khartoum 1960 - Table 9 - 11.

** The Population and Housing Survey, General Survey of the Urban Areas, Khartoum 1968 - Table 13 & 22.

*** The Democratic Republic of the Sudan, "Economic Survey 1974 - National Planning Commission, Khartoum - July 1975.

leavers looking for clerical jobs and the rest were mainly unskilled workers. However, this figure could not be taken as covering the total unemployed for the following reasons:

1. Because only a limited percentage generally find employment through the labour office, many of the unemployed do not attempt to register with the office, in addition to lack of awareness of the role of the office.
2. Many of those registered who find jobs do not seem to inform the office at the right time.
3. There are many who are actually employed but register their names with the labour office to find better jobs.

The 1967/68 Household Sample Survey, using definitions comparable to the Population and Housing Survey but without any age limits, revealed an overall rate of unemployment of 2.9 per cent for the country, ranging from 1.5 per cent for rural areas to 7.5 per cent for semi-urban and 9.5 per cent for urban areas. These high overall rates were mostly caused by the high rate of unemployment among females in addition to the inclusion of an explicit question about seeking employment for the first time.

The most recent and countrywide data on unemployment was that revealed by the 1973 census. According to this,

the unemployment rate for the country as a whole was 6.3 per cent, with little difference between urban and rural areas. The rates of unemployment, however, differ between different provinces as can be shown from the following table:

Table 2:1 Urban and Rural Unemployment Rates in Different Provinces and in Northern and Southern Regions of the Country in 1973

Province	Urban		Rural	
	Male	Female	Male	Female
Blue Nile	5.4	1.1	5.8	0.9
Northern	5.5	2	3.4	4.3
Kassala	3.6	1.3	2.7	2.3
Red Sea	4.6	2.2	6.4	1.8
Kordofan	5.1	1.1	3.9	0.6
Darfur	6.3	0.6	3.5	0.1
Khartoum	5.3	1.7	5.4	6.9
All North	5	1.3	4.4	2.4
Upper Nile	19.9	4	18	3.4
Equatoria	10.8	3.2	10.3	1.3
Bahr El Ghazal	16.8	4.6	22.3	2.5
All South	14.4	4.0	18.4	2.6

Source: The 1973 Population Census

From the table it can be seen that the rate of unemployment in the Southern Region is more than three times that in the Northern provinces. The reason might be the fact that at the census time many of the Southerners were recently arrived from their refugee camps after the Addis Ababa peace agreement. Surveys now under way, however, indicate that the rate of unemployment in the South is falling.

As can be seen from table 8 in Appendix 5:4, unemployment was heavily concentrated among the young. About 60 per cent of them were below 25 years of age and many of them were new entrants to labour force. Open unemployment rates decline from 34.9 per cent for 15- to 19- year-olds and 20.3 per cent for 20- to 24- year-olds to only 3.5 per cent for those in the 45-49 age group.

Two additional surveys have attempted to measure open unemployment in the Khartoum area. In the first, while studying internal migration in the Sudan, it was found that the rate of unemployment in 1971 was 5.6 per cent.* The second was conducted in 1974 by the I.L.O. Preparatory Team to collect data about the labour force.

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* M.E. Galal El Din, "International Migration in the Sudan since World War II, with special reference to migration to Greater Khartoum." (Ph.D. thesis London 1973)

According to the survey results the rate of unemployment was estimated to be 5.3 per cent.

According to the Six Year Plan* the unemployed were estimated to be 290,000 in June 1977. This means the rate of unemployment dropped from 6.3 per cent in 1974 to 6 per cent in 1977.

From all that has been said open unemployment rates have apparently been lower in the Sudan than in many less developed countries.** Greater Khartoum, like so many other capital cities in tropical Africa, has been growing extremely rapidly in recent years. In spite of its high rate of urban growth, surprisingly the rates of open unemployment in Khartoum remained low and constant over many years.

However, even with a constant rate, unemployment has been increasing in absolute terms since the size of labour force is consistently increasing. Moreover, although unemployment is not likely to be a serious problem at the present time, it will be inevitable if job creations continue to grow at a rate lower than population growth.

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* The Democratic Republic of the Sudan, Ministry of National Planning "The Six Year Plan of Economic and Social Development 1977/78 - 1982/83," Volume 1, Khartoum April 1977.

** D. Turnham, "The Employment Problem in Less Developed Countries." O.E.C.D. - Paris 1970.

Differences in concept and definition from one enquiry to another argue against close comparisons of levels of unemployment in the country with other countries, and it might be more useful to analyse the causes and the structural characteristics of unemployment in the country.

2.2.3. Some Characteristics of the Unemployed:

The most common feature of the unemployed revealed by the 1973 census was the preponderance of young workers in the unemployed group. As can be seen from Appendix 5.4, 35.1 per cent of unemployed males and 30.5 per cent of females were in the 15 - 19 age group. A further 20.3 per cent of unemployed males and 19.5 per cent of females were in the 20 - 24 age group. The inclusion of the 10 - 14 age group would obviously affect the size and age distribution of the unemployed.

Other characteristics of the unemployed group of workers tend to follow directly from the relatively young average age of the group. The inexperienced workers under "seeking work for the first time" are very heavily concentrated at the young end of age distribution. 82.6 per cent of them were in the 15 - 19 age group and 11.5 per cent were under 20 - 24 age group. The proportion of inexperienced unemployed to total unemployed was 10.4 per cent in 1973.

Relative to the whole working population the

unemployed as a group tend to be better educated, especially among the young and inexperienced. Of 67,633 persons registered as unemployed in Khartoum labour office in 1973/74, 11,007 or 16% were secondary school leavers, 1,111 technical secondary school graduates and 1,312 graduates of Universities or other higher institutions. However, the educated persons are perhaps more likely to register.

2.2.4. Unemployment Causes:

According to the I.L.O. mission to Kenya, most of the causes of unemployment were in one way or another aspects of imbalances - the imbalance between the growth of the labour force, the urban population and education and the overall growth of the economy, and the imbalance between people's aspirations and expectations of work and the structure of incomes and opportunities available.*

As for the Sudan, the educational system was partly responsible for widening the imbalance between students' aspirations and available job opportunities. Until recently, the majority of jobs requiring education were those in Civil Service. Indeed the government had a habit of making "a price list" for school certificate diplomas. This meant that a person with a particular

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* I.L.O. "Employment Income and Equity .... op.cit.

certificate was entitled to a certain salary irrespective of the nature of his work or his ability to perform the task assigned. Promotion is also mainly governed by certificates and degrees. Parents send their children to school so that they may eventually become government employees. Such policies, however, have possibly been responsible for creating imbalances between the country's manpower requirements and educational output and people's aspirations.*

The placing of a higher floor under wages in the modern-urban sector of the economy by the government under pressure from trade unions might be another factor. By such a policy the government partially determines the wage structure in the economy and hence weakens, to some extent, the market adjustment mechanism. The determined wage rate, being higher than the shadow price of labour, would discourage the use of labour as an input. This might cause investors to shift to labour-saving machinery.

Thirdly, trade union organisations were partly responsible for aggravating the problem in two ways:

(a) Trade unions had been struggling to end the phenomenon of temporary employment in government

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* See M. Blaug, "Education and the Employment Problem in Developing Countries". I.L.O. Geneva 1973.

ministries - such as the Ministry of Works and Ministry of Irrigation. They succeeded in pressuring the government to convert them into permanent employment.* Such pressure was likely to make the government hesitant in any attempts to relieve unemployment by temporary jobs.

(b) Trade Unions had also been struggling against the issue of terminations of employment by the employers. Although in a way their success on this issue could be looked upon as a contribution to employment as it preserved existing jobs and helped to reduce unemployment, it is possible that such an effort when carried to unreasonable extent, might lead to undesirable results as far as employment creation was concerned. Employers who lose their freedom to dismiss may refrain from employing new workers.**

Fourthly, the existence of wage differentials between urban and rural areas attracts migrants even when unemployment exists in urban areas. The behavioural assumption

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* Abdel Rahman E. Ali and A.H. El Jack, "The Role of Trade Unions and Employers Associations in Socio-Economic Development in the Sudan." A paper prepared for the East African Countries Research Symposium on Industrial Relations organized by the International Institute for Labour Studies in Lusaka, Zambia - 5 - 8 January 1976.

** A. Taha and A. El Jack, "Termination of Employment in the Sudan: The search for a compromise". Bulletin International Institute for Labour Studies, Geneva No. 11, 1974.

is that migrants compare the present value of expected life earnings in rural and in urban occupations, and include in their decision to migrate the probability of remaining unemployed for a while in the towns.*

So far, we have been dealing with only one aspect of employment problems in the Sudan - that is open unemployment. Although the reliability of the available data is doubtful open unemployment in the Sudan has generally been lower than in many other countries in Africa. Its incidence varies from one province to another. It is not exclusively an urban phenomenon, as similar rates have been recorded in rural areas. It could affect the educated and non-educated, and it is concentrated among the young. Its extent has usually been under-estimated by official statistics due to the application of inappropriate definitions.

However, in contrast to the relatively favourable situation in respect of open unemployment, we believe underemployment in the country to be high. Higher underemployment means lower productivity and income, hence the necessity for many people to migrate long distances to supplement their incomes. Although under-employment in many cases is synonymous with poverty, we think these concepts have different contents and ought to be distinguished, even though the dividing

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* M. Todoro, "Income Expectation, Rural-Urban Migration .... op.cit.

line may be blurred by a significant overlap.

2.3 The Problem of Underemployment

2.3.1. Definition:

In order to avoid terminological confusion it seems necessary to define exactly what is meant by underemployment. According to the I.L.O. Ninth International Conference of Labour Statisticians, underemployment is supposed to exist where "there is a difference between the amount of work performed by persons in employment and the amount of work they would normally be able to and willing to perform."* This definition is quite distinct from the traditional concept known in economics as "disguised unemployment" supposed to exist in less developed countries in the sense that even with unchanged techniques of production, a large part of the population engaged in agriculture could be removed without reducing agricultural output; in technical terms the marginal productivity over a wide range is zero.**

The differences between the two concepts are quite obvious. First, while underemployment implies that all the labour applied is indispensible for production,

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* I.L.O. "Measurement of Underemployment." Ninth International Conference of Labour Statisticians, Geneva 1957, P. 22.

** J.S. Uppal, "Disguised unemployment in an underdeveloped economy, its nature and measurement." Asia Publishing House, London 1966.

disguised unemployment assumes that labour is wastefully spent, in the sense that on aggregate more labour is expended than is necessary in the existing technical framework. Disguised unemployment is related to a situation arising out of the possibility of a more rational reorganization of work.

The second difference, which is a logical consequence of the first, is that with disguised unemployment the marginal productivity of labour as well as labourers is zero over a wide range, whereas the concept of under-employment assumes that the marginal productivity of labour can only be zero at the margin.

It seems irrational that the members of a family in agriculture work to a point where the marginal productivity of the last hour of labour becomes zero. The confusion according to Professor A. Sen.* arises from not distinguishing between labour and labourers. It is not that too much labour is being spent in the production process, but that too many labourers are spending it. Disguised unemployment, thus, normally takes the form of a smaller number of working hours per head. It is thus the marginal productivity of labourer, so to speak, that is zero over a wide range, and the productivity of labour may be just equal to zero at the margin.

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* Sen. A.K., "Choice of Techniques." Blackwell 1968.

In practice, it seems difficult to measure the volume of "unnecessary" labour in agriculture. In order to achieve this, it is imperative to decide first what "necessary labour" is. To establish such a technical norm is difficult in a sector which consists of so many heterogeneous units both in size and method of cultivation. An attempt to draw a line between that part of the farmer's work which is considered "necessary" and that which is not, is extremely difficult.

Measuring all the dimensions of underemployment problems of labour in less developed countries is a very difficult task that might call for further clarification of concepts and for vigorous efforts to improve statistical data.* Unfortunately, the evidence on underemployment is not good, and its measurement is both difficult and costly. The I.L.O. Employment Study in Colombia suggested that perhaps 30 per cent of the available labour, counting open unemployment and various kinds of underemployment, was unutilized.** Similar figures could be cited for Sri Lanka, Iran, Kenya and several other countries, but the definitions being used

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* A brief but useful discussion of various concepts of underemployment and results of attempts to measure it is in Kao, Anschel and Eicher, "Disguised Unemployment in Agriculture: a survey, in Eicher, C.K. and Witt, L. (eds.) "Agriculture in Economic Development" McGraw - Hill 1964.

** I.L.O. "Towards Full Employment."..op. cit.

were ambiguous, the concepts employed were not comparable and the data on which they were based were very sketchy indeed.*

In the Sudan the I.L.O. study, though it admitted the present of severe underemployment in agriculture, did not attempt to make any quantitative measurement. Moreover, in spite of the great importance of the problem of underemployment in the country, no census or survey has attempted to measure it. The qualifications and difficulties of measurement might be the main reason for ignoring the problem. In the Sudan as in many other less developed countries, many people perform work not as individuals but as members of groups - the nuclear family and the extended family. Working arrangements that give the best results in terms of work and income for the group as a whole might not necessarily utilize the service of each member of the group.

2.3.2. Extent and Causes of Underemployment in the Sudan:

To estimate underemployment in traditional agriculture the households covered in our own Agricultural Workers Survey of 1976/77 were asked about their normal daily

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* Edgar O. Edwards (ed.), "Employment in Developing Nations." Report on Ford Foundation Study. Colombia University Press, 1974 - P. 14.

Also see Edgar O. Edwards, "Employment in Developing Countries." In World Development, 1974. Vol. 2 No. 7 PP. 1 - 27.

working hours. The average working hours ranged from as low as three hours in certain villages to as high as 10 hours in others, giving an overall average of 5 hours per day. Assuming a normal working day of 8 hours, the size of underemployment was calculated as the difference between the normal time available and the actual time worked. The difference when converted into full-time equivalent man-days gave about 37.5 per cent of the total labour force. This means that in traditional agriculture a high rate of underemployment exists, constituting a serious employment problem.* The causes of the problem can be outlined as follows:

1. Agriculture where most of the rural population work is characterized by seasonality. This seasonality can be traced back to the time interval between the tasks of sowing and harvesting, to the rigid necessity of carrying out operations at the right time, and to the simultaneity of the harvest period for all cultivators in a particular region. In the agricultural operations the period of growth and maturity, followed by harvesting, together with an 'off season', account for a whole working year. Even within these operations, there is some time of idleness, as in the case of rainfed agriculture where a long waiting time is required

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* These estimates call for caution because of the subjective element involved in the choice of 'normal' time.

between cultivation and harvesting.

2. The forced unemployment during the slack agricultural season. This seasonal unemployment is mainly due to the fact that in the off season after crop harvest, practically nothing can be done on the farm. This period is longer in traditional agriculture which depends on rain for irrigation. The traditional farmers who do not migrate might be unemployed with their families for about five months every year. However, it is important to note that these large numbers of idle people can not be withdrawn from agriculture completely without a drop in output, as in the busy season the farm workers may be overemployed to finish work within a span of time determined or dictated by climatic and biological factors.

3. The magnitude of seasonal unemployment varies with the type of crop-mix, condition of the soil, techniques of cultivation and possibility of crop rotation. Moreover, among agricultural operations, there are some which can be successfully performed only at a certain time. Any delay in completing such operations at a particular time might lead to the loss of part of the product. In such circumstances, it is not possible to expect a task which can be done by ten persons in four days to be done by four persons in ten days. It is this fact which mainly makes impossible to withdraw a

sizeable fraction of labour force without affecting output.

In traditional agriculture there are usually two operations or two periods of "rush work" - namely sowing and harvesting - followed by the idleness of the 'off seasons'. There are other operations, such as hedging and general upkeeping of farms and buildings which can be done at any time during the year. There are still some others which impose a routine throughout the year, such as milking and taking care of the livestock.

Fortunately in Sudanese agriculture, the peak demand for labour in modern agriculture mainly coincides with the "off season" in traditional agriculture.* This means the existence of both shortage and surplus in different regions of the country. However, such a situation might not become obvious if we took the agricultural sector as one unit. It would be tempting in such a situation to assume that surplus labour in one region could be available to satisfy manpower shortages in other regions. The conventional method of estimating employment, which does not take into consideration the fundamental structure of the agricultural sector, and divide the total volume of employment by the total labour force, overestimates the

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* This is further elaborated in Chapter Six.

supply because in the existing organization of the agricultural sector neither farms nor their working force are evenly distributed. To provide every aspirant with a volume of employment equal to the quotient of the aggregate employment available and the number of persons in the labour force, there should be a perfect mobility of labour* .... for what determines labour supply in agriculture is not the absolute size but the availability of the labour force.

The fact that a farm family in traditional agriculture is not engaged in agricultural activities for several months of the year proves nothing about its availability for seasonal employment in modern agriculture. First of all, the opportunity cost of seasonal migration, while very low, is not zero. There are non-agricultural but essential household activities that are normally carried out in the off season but which are usually neglected in calculations of labour requirements.** Secondly, there is the question as to whether migration is sufficiently attractive, considering

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* D.L. Dantawala, "Notes on some aspects of rural employment." Indian Journal of Agricultural Economics. Volume III. No. 2, 1953 - P. 22.

** See for example, B. Hansen's conclusions in "Employment and Wages in rural Egypt," in R. Jolly et al. (eds.) : Third World Employment ... op. cit. P. 234.

the distances, wage rates and local income-earning opportunities. Most of these factors will later be discussed when analysing our own household survey of agricultural workers.

2.4. Problems of Income Distribution in the Sudan

Income distribution is generally closely related to employment problems. It may affect the level of employment through its effect on the pattern of consumption in two ways: the first is through the different import content of the expenditures of the rich and the poor; the second is through the different direct labour content of those expenditures.* If we assume that the tendency to consume imported products is higher among the rich than among the poor, then the greater the degree of inequality in income distribution the higher the demand for foreign goods. Moreover, a given amount of income will generate more employment when spent more on the purchase of wage goods rather than on the acquisition of consumer durables.

Employment without equitable income distribution could further contribute to widening the gap between poverty and affluence within society. As in many other less developed countries, it was thought that the attainment of reasonable rates of growth would automatically lead to a wide distribution of benefits.

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* I.L.O. "Towards Full Employment" .... op.cit.

However, the experience of the last two decades shows that the development strategy pursued by the planners failed to achieve this goal.* The pattern of the country's economic and social development over the past twenty years seems to have created profound social and economic imbalances. The main reason was possibly that the benefits from economic growth have been unevenly distributed among different regions of the country in spite of the moderate rate of economic growth which was achieved. The number of poor has in fact increased. The gap in living standards has widened further, causing social and political tensions. These regional inequalities are mainly caused by the pattern of government investment policies. The main object of this section is to analyse data available about income distribution in the Sudan. To analyse such data it is necessary to compute a measure of overall inequality as well as dealing with geographical regions by assessing inequality between areas.

Income distribution in a country depends mainly on

(a) the distribution of income-earning resources - jobs, land and capital

(b) the provision and distribution of public goods - education, health services, etc.

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* This argument is further developed in Chapter Three.

(c) the distribution and size of transfer payments

(d) the tax system

Of the above four layers, the first alone acts directly on the distribution of earned income, while the direct effects of the other three are to redistribute those earned incomes.

2.4.1. The Distribution of Income-Earning Resources:

The roots of the income distribution problem lie in the distribution of earned incomes, and lasting solutions must come to deal with that issue. The creation and distribution of jobs is one element affecting the distribution of earned incomes. Of the country's total economically active population in 1973, only 25.6 per cent were wage-earners.* About two-thirds of the wage-earners were reported in the three provinces of Khartoum, Blue Nile and Kassala. The three Southern provinces had together only 16 per cent of wage-earning employment, while Kordofan and Darfur had 8 and 4.5 per cent respectively. Moreover, in the analysis of the occupational classification of the labour force in Chapter Five we shall see how the three provinces of Khartoum, Blue Nile and Kassala constituted the vast majority of the highly-paid jobs such as professional, administrative and managerial, technical and related

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* See Appendix 5:4, table 4.

jobs. Most of these jobs were concentrated in the modern sector.

As for the distribution of cultivated area in 1973, the Blue Nile and Kassala Provinces accounted for 45 per cent while the three Southern provinces had only 7 per cent of the area under crops.* The modern agricultural sector accounted for nearly all of the country's production of cotton, wheat and castor, two-thirds of the production of dura, and half of ground nuts and seasame. In terms of value of production the modern sector contributed as much as 80 per cent of the country's total agricultural production. Productivity in the modern agricultural sub-sector was estimated to be much higher than in traditional agriculture. For example, in 1970 the average per capita income in traditional agriculture was about one-third of that in modern agriculture and only about one-fifth of the aggregate average.

As for the geographical distribution of capital, it can be represented by the way in which industrial establishments were distributed in the country. In 1970, out of 209 industrial establishments** 153 (73%)

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* Chapter Four provides further description and analysis in respect of land under crop.

** Industrial Survey 1970/71 - Khartoum.

were in Khartoum province. Blue Nile and Kassala together had 15 per cent of total establishments, while Kordofan, Darfur and Bahr El Ghazal had 7.7, 1.4 and 0.5 per cent respectively. As for industrial wages, the shares of Khartoum, Blue Nile and Kassala Provinces were 67.2, 14.3 and 13.0 per cent respectively. The per capita income of persons engaged in the industrial sector in 1970 was LS 92.4. The figures for the tertiary and agricultural sectors were LS 85.7 and LS 18.1* respectively.

A focus on the creation of employment opportunities, however, will not in itself achieve equity in income distribution, but it should help substantially to improve the distribution of earned incomes. This could be partly through direct employment effects and partly because other resources complementary to labour might have to be more widely dispersed as a means of generating employment opportunities.

2.4.2. The Provision and Distribution of Public Goods:

The provision of public goods could be considered as some sort of transfer payment in kind. The services supplied are intended to meet urgent social needs and to improve the capacity of people to participate in

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* This figure needs to be treated with great caution, since it is ridiculously low. This raises the problem of assessing 'income' of subsistence farmers.

development through better nutrition, health and education. Table 2.2 overleaf shows the pattern of distribution of social services in the country. From the table the disadvantage of the Southern provinces seems to persist. While Upper Nile, Equatoria and Bahr El Ghazal between them have 30 per cent of the country's population, the provision of health centres, dispensaries and dressing stations within their territories was 7.3 per cent, 15.6 per cent and 11.5 per cent of the national totals respectively in 1973/74. Although data for primary and general secondary schools in the Southern provinces are not available, the fact is that these provinces appear to be disadvantaged. Darfur too, with 14.8 per cent of the country's population, had only 9.8 per cent of the primary schools and 7.6 per cent of general secondary schools in 1972/73. By the following year it had 9.8 per cent of the health centres, 10 per cent of the dispensaries and 2.9 per cent of the dressing stations.

The regional inequalities were further widened by the distribution of other social facilities. The three Southern provinces could claim only a little more than 12 per cent of the total number of post and telegraph offices in the country. While the total number of offices increased from 169 to 204 between 1969/70 and 1973/74 the number of offices in the south

Table 2.2. Distribution of Education and Health Services in the Sudan

Social Service	Primary Schools		General Secondary		Health Centres		Dispensaries		Dressing Stations	
Province	1966/67	72/73	66/67	72/73	66/67	73/74	66/67	73/74	66/67	73/74
Blue Nile	420	1,369	50	143	13	43	156	158	189	667
Kordofan	286	517	32	100	6	12	72	83	83	161
Kassala	231	656	28	62	19	16	69	70	90	459
Darfur	217	344	17	40	4	13	56	62	40	66
Khartoum	219	384	36	58	20	33	35	32	23	81
Northern	295	389	50	130	5	11	72	118	107	237
Upper Nile	N/A	N/A	N/A	N/A	1	3	27	33	39	46
Equatoria	N/A	N/A	N/A	N/A	1	4	28	48	39	111
Bahr El Ghazal	N/A	N/A	N/A	N/A	1	3	13	16	53	61
All Sudan	1,868	3,659	213	533	65	138	528	620	663	1,889

N/A - Not available

Source: Statistical abstract 1973 Table V.2

remained static. Loans distributed by the banking sector show a similar bias. Unfortunately, the province-wise breakdown of advances was only available for the Industrial Bank. Of the aggregate advance of two million Sudanese pounds only 4 per cent was intended for projects in the south. While data was not available from the Agricultural Bank, the credit facilities it provides are mainly to modern agriculture. The geographical spread of bank offices in 1973 showed that, out of 103 bank offices in the entire country, only three were located in the south. While the government is attempting to close the gap in per capita income through fiscal operations between the south and the rest of the country, the institutional facilities have not yet been mobilised for this task.

2.4.3. The Pattern of Income Distribution in the Sudan:

Having seen how income-earning assets and social services were distributed in the country, we try to see how income is distributed in the country. The first attempt to calculate the national income of the country was that made by Harvie and Keleve* in 1955/56. They made a broad division of provinces into four groups, as can be seen from the table overleaf.

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* Harvie, C.H. and Keleve, J.G. "The National Income of Sudan, 1955/56," Khartoum 1959 - P.2.

Table 2.3 Per Capita Output in Different Regions of the Country in 1955/56

Region	Provinces	Population (000)	G.D.P. (LS000)	Per Capita Output
A	Khartoum, Kassala and Northern	2,319	75,788	33
B	Blue Nile	2,070	86,938	42
C	Kordofan and Darfur	3,091	83,777	27
D	The Southern Provinces	2,783	36,610	14
	ALL SUDAN	10,263	283,113	28

Although their divisions were very broad and lack homogeneity, the table reflects disparities between regions. While the country's overall average was too low to satisfy the basic human needs, the averages for the West and South were even lower than the national average. Blue Nile, where the Gezira Scheme is established, was by far the most productive region. The inclusion of Northern Province in one group with Khartoum and Kassala might have underestimated the average for the last two provinces.

Another attempt to find out the regional distribution of income in the country was made by McLoughlin.*

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* McLoughlin, P.F.M. "Income Distribution and Direct Taxation: a case study of the Sudan." Economic Internationale, August 1963 - P.338

His calculations were based on the 1955/56 National Income Account and the population census of 1955/56. He divided the country into nine regions based on physical environment i.e. climate, soil and topography. According to his estimates, per capita income in Khartoum, Blue Nile and Kassala provinces was much higher than the rest of the country. However, as his study was based on climatic regions, a precise provincial comparison would not be possible.

The most recent information about income and expenditure in the Sudan is the household budget survey* conducted in 1967/68 covering the six northern provinces excluding the nomads. Up to 1969 the final consumption expenditure of households was estimated mainly by the commodity flow method based on the production approach, and mainly for the six northern provinces. Data for the Southern provinces are still lacking, as peace and order returned to that area only after the Addis Ababa Agreement in 1972.

The 1967/68 household budget survey gave for the six Northern provinces data on average income and expenditure of households in the urban, semi-urban and rural areas. Data representing the distribution of income and expenditure by size-class derived from the survey can be represented by the table overleaf.

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* See Basic Statistics, ... Chapter 1.5

Table 2.4 Distribution of Households According to Annual Income and Expenditure 1967/68

Income					Expenditure				
All Income	Percentage of Household In				All Expenditures	Percentage of Households In			
	Urban Areas	Semi-Urban Areas	Rural Areas	All Areas		Urban	Semi-Urban	Rural	All Areas
Less than 100	3.8	15.5	34.2	30.7	Less than 100	2.4	8.4	24.6	20.6
100 - 200	24.4	34.0	97.7	42.9	100 - 200	16.1	30.2	52.0	45.9
200 - 300	25.1	22.3	11.1	13.4	200 - 300	25.5	32.2	17.5	19.6
300 - 400	14.8	11.8	4.3	5.8	300 - 400	21.5	15.4	3.9	7.0
400 - 500	9.7	5.8	1.4	2.7	400 - 500	12.4	6.8	1.5	3.3
More than 500	22.2	10.6	1.3	9.5	More Than 500	22.1	7.0	0.5	3.6
Average Annual Income	411	270	148	189	Average Annual Expenditures	396	267	158	196

Source: Household Budget Survey for the Sudan 1967/68

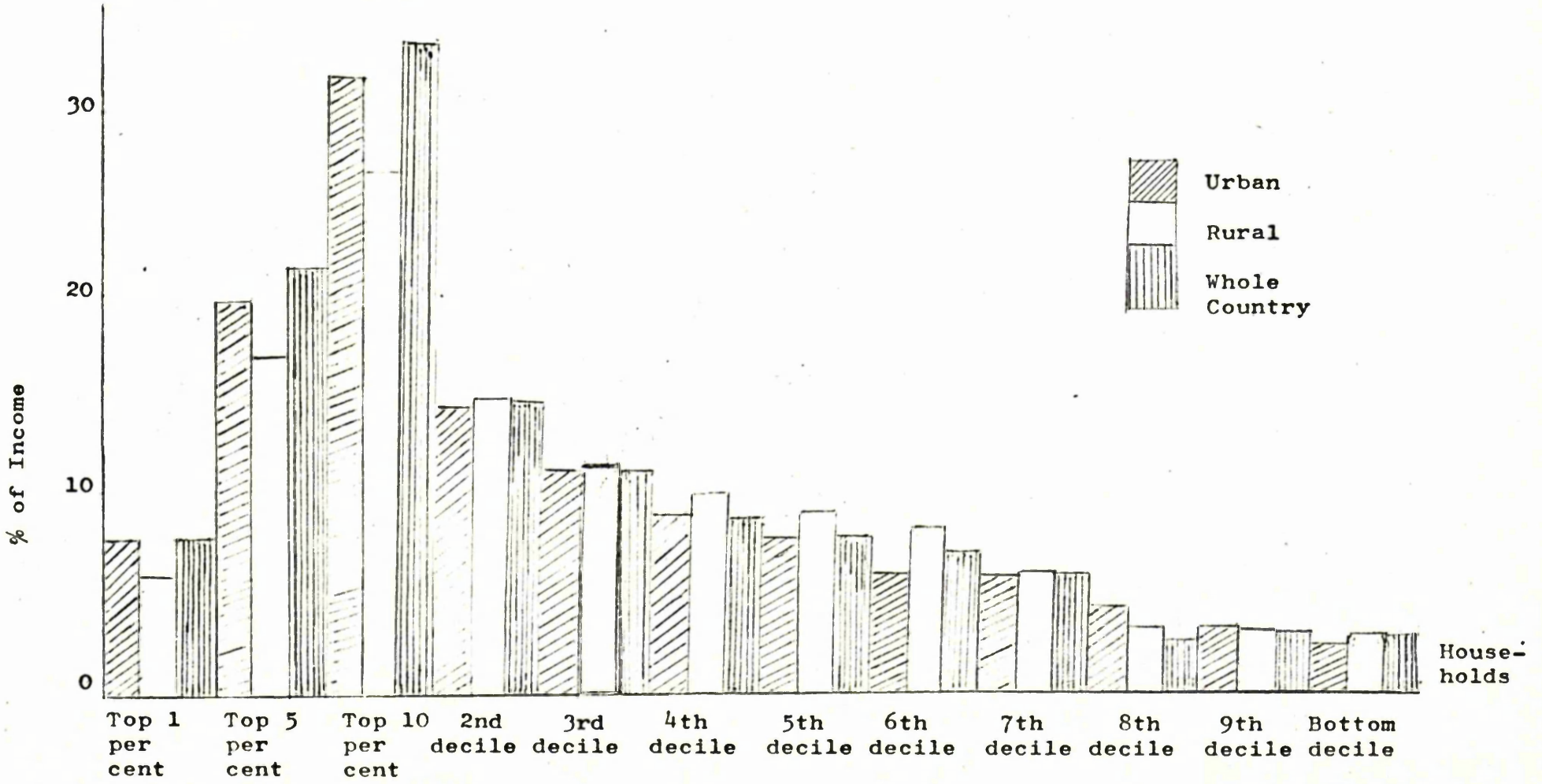
At the time of the survey, more than 70 per cent of the households had an annual income of less than LS 200, while two-thirds of the households covered spent less than LS 200 annually. At the other end hardly 7 per cent of the households either earned or spent more than LS 400 per annum. The proportion of households expending more than LS400 per annum was close to 35 per cent in urban areas but only 2 per cent in rural areas. 45 per cent of total households in urban areas were receiving income more than LS 300 while only 7 per cent were receiving more than LS 300 in rural areas. Another point of particular interest is that for the households covered the average annual expenditure exceeds the average annual income by LS 7 which means that net dis-saving was taking place. While people in urban and semi-urban areas are on average saving part of their incomes, the average in rural areas shows dis-saving of LS 10 a year. Had the Southern provinces and the nomads been included in the survey, the average income would be much lower, specially in rural areas.

The 1976/77 agricultural workers' survey revealed an average household income of LS 213.8 per annum in rural areas. This probably means incomes have partly improved in rural areas during the last nine years. However, the improvements in real incomes might be negligible when we consider the persistent rise in the

cost of living.

It seems that income distribution was very unequal as indicated by Fig. 2.1. The richest 10 per cent of the households received 33.7 per cent of personal income whereas the poorest 40 per cent received less than 15 per cent and the poorest 20 per cent received only 5 per cent. The Gini co-efficients provide further evidence of the high income inequality in the country. They suggest that income distribution was slightly more even in rural areas. It would be more useful to assess the inequality of income in the country in comparison with other less developed countries, but there is, unfortunately, no agreement about the kind of comparison which can be made as countries differ in their economic structure and state of economic development. However, on the basis of some data from past investigations it was estimated that the Gini co-efficient of the country was 0.34 in 1955/56. This is an indication that the distribution of income seems to have become more skewed in the course of the decade. The income distribution in 1967/68 was heavily skewed in favour of urban areas as can be seen from table 2.5

Fig. 4.1 Income Distribution in the Sudan in 1967/68



Source: See Table 4 Gini Co-efficient: Urban 0.398: Rural 0.3455: Whole Country 0.4204

Table 2.5 Distribution of Annual Income between Urban, Semi-Urban and Rural Households in the Sudan in 1967/68[x]

Sector	% of households in each area	Aggregate Income of each sector (LS mill.)	Aggregate Income Distribution %	Annual Average Income/ Household LS
Urban Areas	12	61	26	411
Semi-Urban	8	27	11	270
Rural Areas	80	148	63	140
All Areas	100	237	100	189

Source: Household Sample Survey 1967/68. Department of Statistics Vol. 1, Khartoum 1969.

[x] Excluding the Nomads and the Southern Provinces.

In the areas covered by the survey 26 per cent of aggregate income was in urban areas, which formed only 12 per cent of the total households. The semi-urban areas, with 8 per cent of households, had 11 per cent of total income; while the rural sector, with 80 per cent of households, had only 60 per cent of total income. The average annual income per household in urban areas was about three times higher than in rural areas.

2.4.3. Some Causes of Income Disparities:

Many of these inequalities could be attributed to the government's monetary and fiscal policies. In the

following pages we shall critically examine the possible influences of these policies, with an attempt to draw some inferences about how policy may be modified to give more consideration to the problems of employment in general and to income distribution in particular.

The economy of the Sudan is characterized by the co-existence of modern and traditional sectors. Such a dualism is exhibited in technological, social, financial and other differences between the two sectors. Such differences account for the wide gap between the productivity of the modern sector and that of the traditional sector. Productivity in the latter sector has always lagged behind that in the former. Agriculture, which is the largest sector, is also characterized by such dualism.

The first and the most important factor responsible for income inequalities between the modern and traditional sectors springs from the development strategy adopted by the government.* This was largely a strategy which emphasised growth as the major objective. The implication was that achieving growth would simultaneously promote employment and redistribute the benefits. To achieve this goal, the country planned to industrialize through the manufacture of various commodities. In order to industrialize, efforts were

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* See discussion of this issue in Chapter Three.

concentrated on promoting investment in the modern sector.

In a recently published report, commissioned by the Sudan government and now accepted as a guideline for the six year plan (1977 - 1982),* the ILO urged that traditional farming should not be ignored in the rush to promote modern agriculture. The temptation to push ahead with highly commercial mechanised farming, leasing out huge tracts of land at a time, could simply serve to accentuate the regional disparities as well as those between rich and poor. With agriculture likely to remain the chief source of national revenue for many years to come and with three-quarters of the country's workforce employed in agriculture, the emphasis should, in the ILO's view, be placed on investment in traditional crop and livestock raising in Southern and Western Sudan.**

Before we look at the Six Year Plan (1977/78 to 1982/83) objectives and allocations, we should note the effect of the ILO report on the plan formulation.

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* The Democratic Republic of the Sudan, Ministry of National Planning. "The Six Year Plan".... o.cit.

** The Economist Intelligent Unit Ltd. "Quarterly Economic Review of Sudan." 1st Quarter 1977, London 1977.

This has been described as follows:

"It is evident that the ILO report played a very important role in the formulation of the Six Year Plan. The main objectives, strategies and policies, are greatly affected by the recommendations of the report. The emphasis on growth and equity, output and productivity, employment and income, were all the product of the 'comprehensive strategy'".* Among other objectives of the six year plan the following seem to be the most important:

(a) The achievement of substantial increases in per capita income in real terms through development of both modern and traditional sectors. The plan aims at achieving an annual growth of 7.5 per cent at constant prices, with agriculture continuing to be the pivot of development and the leading sector of the economy.

(b) Conservation of the country's natural resources.

(c) Development and modernization of the traditional agricultural sector.

Unfortunately, while the plan objectives seem to

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* A. Tigani "The effect of the ILO Comprehensive Strategy for the Sudan on the preparation of the Six Year Plan for Economic and Social Development." Paper read to the symposium on the ILO Report to the Sudan - Khartoum, Feb. 1977.

be in line with the ILO proposals its allocations seem contradictory. The sectoral share of industry from the total planned public investment was improved at the expense of agriculture and other sectors, as can be seen from the table below. From a proposed total of LS 1,570 million for public investment, a total of LS 225 million is proposed to be kept as a general reserve at the disposal of the government. Out of the LS 425 million planned to be invested in agriculture LS 90 million are expected to be invested in on-going projects.

Table 2.6 Sectoral shares of total planned public investment (percentages)

Sector	Ten Year Plan*	Five Year Plan**	Six Year Plan***
Agriculture	32	38	32
Industry & Public Utilities	13	20	25
Transport & Communications	22	15	25
Social Services Admin.	33	27	18
	100	100	100

* The Republic of the Sudan, Ministry of Finance and Economics. "The Ten Year Plan of Economic and Social Development 1960/61 - 1970/71." Khartoum 1962.

** The Democratic Republic of the Sudan, Ministry of Planning "The Five Year Plan of Economic and Social Development of the Democratic Republic of the Sudan for the period 1970/71-1974/75." Vol. 1 Major Trends of Development, Government Printing Press 1970.

*** The Democratic Republic of the Sudan, Ministry of National Planning "The Six Year Plan" .... op.cit.

Although there is not sufficient information on the pattern of private and semi-private sector investment, the shares of agriculture, industry, transport and services are expected to be 27 per cent, 18 per cent, 16 per cent and 40 per cent respectively. The total amount of money to be invested by the private and semi-private sectors are planned to be LS 1,100 million.

The total allocation for agricultural investment during the Six Year Plan amounts to LS 715 million, representing 27 per cent of the total plan investments. Out of this the share of public sector will be 425 million, from which 90 million is expected to be invested on on-going projects which are mainly in the modern agriculture. From the share of new projects only 28 per cent will be invested in traditional agriculture.

The mechanised rainfed agriculture, which is very profitable, had been a major outlet for private Sudanese investment and is expected to be so in future. The number of plots allocated for private investors increased from 1,603 in 1969/70 to 2,984 in 1975/76, an 86 per cent increase in six years. From the point of view of equity of income distribution, the present policy of plot allotment to the tenants in this sub-sector discriminates against small farmers. The condition that a deposit of LS 1,000 be made as an

advance to the Board of the Mechanised Crop Production Schemes, eliminates most of the small farmers as they are unable to raise this sum. Merchants and retired civil service employees who have no agricultural background, become the successful candidates. Distribution of plots is thus based on economic criteria rather than on agricultural experience.

Mechanised farming is mainly practiced in Blue Nile and Kassala Provinces. It is in these two provinces that we expect the private sector to continue to invest in agriculture since they are maximising profits. For the private sector to extend mechanised farming onto the sandy soils of Kordofan and Darfur is neither ecologically desirable nor technically possible.

Although the strategy for agricultural development in the Six Year Plan is almost in line with the proposed Strategy of the ILO to accelerate development in the traditional sector, the plan allocations do not satisfy the requirements for achieving these objectives. Only about 94 million, or less than 4 per cent of total investment, is directed towards the development of new projects in this sub-sector. The main reason for this might be the insistence of the planning authorities on developing schemes in the modern sector. A quotation from an official document may be illustrative here.

"Unless the existing modern schemes, together with the new, maintain certain productivity levels desired to serve as major contributors of foreign exchange earnings, it will be difficult to adopt new approaches elsewhere. Moreover, the investment towards increased productivity in the amended five year plan succeeded only partially and in some years some crops productivity went down.*

From the above, it seems that rapid economic growth has been the main objective of the planners, while equity is given very little concern. The traditional sector, accordingly, should wait for returns to be generated in the modern sector in the six year plan. If the six year plan did not achieve enough returns the traditional sector would wait further.

There seems to be little agreement among the planners on what "modernization of traditional agriculture" involves, its potential and what priority it should have.** The ILO understands it to mean investment in social and economic overhead capital programmes (research and extension, marketing, transport) to achieve technical

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* M.A. Ali "Strategy for Agriculture". Department of Planning, Ministry of Agriculture. Khartoum 1977, P.18.

** Martin Adams, "Developing the Traditional Sector in the Sudan." Paper read to a symposium on ILO Report to the Sudan. Khartoum Feb. 1977.

and organisational advances necessary to improve the welfare of the poor. They recommended that the traditional sector be given priority for future investment on both equity and efficiency grounds.

As for the industrial sector, past government policies have provided greater incentives for investment in industry than in agriculture and hence have made industry more attractive to the private sector.* Exemptions from taxation, generous investment and depreciation allowances, concessions on import duties and other liabilities, as well as favourable prices of domestically used facilities, such as water, electricity, transport etc. operate to make investment relatively profitable in this sector. In addition to incentives and concessions, under the Development and Promotion of Industrial Investment Act of 1972, heavy tariffs and quantitative restrictions on imports provided a protected domestic market. This encouraged the establishment of industries unable to produce quantity or quality of goods except at a high social cost. Unlike industry, agriculture is not only deprived of such incentives, but it has also suffered from a negative protection. Export bans, export taxes, price fixing and export marketing through state corporations, all combine to depress producer prices.

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* Budget Speech, 1974/75, presented by the Minister of Finance and National Economy, 3rd June, 1974 - P.7.

In addition to the above, efforts were made to establish the necessary monetary institutions to provide funds for industrial investment purposes. The Industrial Bank, established in 1962, was mainly created for that purpose. Credit facilities for agricultural development are in fact very limited. The Agricultural Bank provides some sort of assistance, but neither the quality nor the quantity of such facilities are comparable to what the industrial sector gets. Rates of interest for industry were kept at very low levels compared to what they could be, given the scarcity of funds and the enormous imperfections that exist as well as the risks involved. The rate of interest charged on loans for industrial purposes does not exceed 14 per cent. Due to unavailability of credit from the development banks for traditional agriculture, this sub-sector is left almost entirely at the mercy of market forces which determine the rates of interest charged. In certain parts of the country rates of interest have been quoted as about 200 per cent.* This either discourages borrowing or raises the cost of production or both. Whatever the outcome, profitability in the agricultural sector is rendered too low and hence people are encouraged to invest in

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* Ahmed, S.E. "The Integration of Agricultural Credit and Marketing in the Gezira Scheme of the Sudan". Unpublished Ph.D. thesis, University of London 1977.

industry.

The over-valuation of the currency, evident from some studies* made, reinforces the bias against the traditional sector. As a result of such a policy, in addition to exemption from import taxes, capital is made cheaper. Since industry is likely to be more capital intensive it is expected to benefit more from such policies, which have the effect of rendering imports cheap. To verify the capital intensity of industry relative to agriculture, some evidence can be cited. A total investment of LS 16 million in the industrial sector absorbed 10,350 persons while an investment of LS 44 million in Managil extension of the Gezira Scheme produced direct employment of 40,000 tenants and 250,000 seasonal jobs annually.**

The government under pressure from trade unions increased urban wages several times during the last two decades. This policy resulted in a wage differential between the urban and rural sectors. This was reinforced by the maintenance of terms of trade which are against the agricultural sector. Further, the tendency to keep

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* A. Kadri, "Sudan's Exchange Rate: Estimate of changes In its effective exchange rate, National Council for research, Bulletin No. 13 - P.16.

** "The ten year plan for Economic and Social Development 1961/62" ..... op.cit. P.P. 85 - 89.

the prices of agricultural products, such as wheat deliberately low in order to satisfy the urban population reduced the incomes of the agricultural sector.

The tax system is a potential means for modifying inequalities in the distribution of earned incomes if it is progressive in nature. Unfortunately, the country's tax system as in many other less developed countries is not very progressive and in some cases may be regressive in nature.*

Direct taxation in the Sudan consists of land tax, ushur, business profits tax, and more recently income tax (1964). The contribution of direct tax to the government revenue, though increasing, is still very low. It increased from 4.4 per cent in 1967/68 to 10.4 per cent in 1971/72. The reason for the low contribution of direct tax might be the low contribution of personal income tax due to the high exemption level and low tax rates. Such low income taxes could be a privilege to urban families. In rural areas the farmers pay land and animal taxes. While land and crops are subject to taxation in traditional agriculture,

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* See Abdel Hameed, A. "The Evaluation of the Sudan Personal Income Tax" Occasional Paper No. 19, Institute of Public Administration, Khartoum, May 1967, P.14.

the Gezira farmers are exempted from these taxes.*

The Sudan revenue system is heavily dependent on indirect taxes. In 1971/72 they contributed about 68.2 per cent of government revenue.** In a country where the traditional sector assumes prominence, where the monetary sector is small, the degree of illiteracy is very high and where the lack of records of income renders income taxes highly ineffective as a source of income, indirect taxes become the alternative. However, the impact of such taxes on income distribution may be regressive. If this is the case then indirect taxes may increase inequality in income distribution. However, indirect taxes could be deliberately designed to accommodate the distribution objective by introducing discriminatory rates which take into consideration the income levels which consume different commodities.

The nature of the tax system is an important ingredient in assessing the redistributional effects of transfer payments and public goods, those effects depending not only on who benefits, but also on who pays.

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* International Bank for Reconstruction and Development, "Gezira Study Mission" - Main Report, Khartoum - October 1966 - P.63.

** The Democratic Republic of the Sudan "National Income Accounts and Supporting Tables 1971/72." National Planning Commission - Khartoum, April 1974.

Although transfer payments are a means of transferring income, in the case of the Sudan it seems that they tend to worsen income distribution. This is because most of the revenues for public transfers are financed from indirect taxes and they mainly take the form of subsidies to farmers in modern agriculture and industrialists. Much of the social burden of the needy (the aged, the disabled, the temporarily unemployed) in the country is managed through private transfer payments, largely within the extended family. These transfers probably move mostly from the poor (but employed) to the needy - from the small farm family to parents or to children seeking employment in the city - rather than from the rich to the poor. However, it is also evident that many of the wage earners in towns help their relatives. In general, transfer payments are necessary mechanisms but they should not be regarded as a long-term substitute for employment opportunities or as a complete solution to problems of income distribution.

To sum up the discussion in this part of this chapter, we can say that many policies, monetary, fiscal or direct, have contributed towards aggravating employment problems in a way that is incompatible with employment promotion or income equality.

2.4.4. Future Policies:

In the final part of this chapter an attempt will be made to discern how policies can be modified in a manner which might be conducive to productive employment and equitable income distribution. Although such policies may be incompatible with high rates of growth, we believe that if policies are carefully designed there is no reason why growth should be sacrificed, especially in the long-run. These objectives are not mutually exclusive and in fact they can be complementary provided a very careful balance is worked out.*

The most important possible remedy is that policy makers and planners in the country have to be clearly concerned with growing problems of employment and take active steps to deal with these problems. Employment problems could only be tackled completely through revision of the total development strategy and its application to rural and urban areas, modern and traditional sectors, public and private activities and educational planning. Employment strategies have to be considered as an essential part of development strategy.**

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* Adedeji, A. "Employment objectives in national planning." A paper read to the Seminar on Managing Unemployment in Africa. December 1974 (Khartoum) P.18

** Emmerij, L. "A new look at some strategies for increasing productive employment in Africa." Int. Lab. Rev. July-August 1976, Vol. 114, No. 1 - PP. 1 - 10.

An important line of policy might be the modification of the existing fiscal and monetary incentives given to industrial investment. The modification might be directed towards a selective approach based on employment creation and regional location of industries. The manufacturing industry in the Sudan is highly concentrated in Khartoum province where more than 73 per cent of all manufacturing industries is located. The reason is mainly the existence of the principal requirements for the location of industry in this area; availability of raw materials, energy, labour, transportation and market accessibility are all important factors which assure industrial development. Moreover, an initial concentration of industry stimulates further concentration because of linkage effects. Complementary industrial activities such as packing, maintenance and repairing are also concentrated in the same area. The regional imbalances of industrial location may hasten the depopulation of rural areas and cause migration of large numbers to Khartoum, adding to its social and political problems. Therefore future policies should aim at a regional balance of industrial development. Such policies would lead to a reduction in disparities of income between different regions and especially that between rural and urban areas.

A more effective policy is needed towards developing

the agricultural sector. The promotion of the agricultural sector could help in tackling many employment problems. It would reduce the structural imbalance which causes problems of unemployment. Moreover, it would help to produce food for the urban population, and the rise in incomes of the agricultural sector would stimulate industrial expansion since the demand for industrial products would increase.

There is no economic justification to encourage industry at the expense of agriculture in a country where much of the future potential for development lies within the agricultural sector. Exports of agricultural products have to be encouraged and the tendency to keep the prices of agricultural products deliberately low in order to satisfy the urban population should be checked. The provision of credit at a reasonable cost to traditional agriculture would help the farmers to adopt modern techniques of production which might raise their incomes and hence their standards of living.*

Some policy tools which can be used to modify income distribution should be encouraged. These include progressive taxation, the subsidised distribution of essential commodities and services, the establishment

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* M. Yudelman, et. al. "Technical change in Agriculture and Employment in Developing Countries." Development Centre of the Organisation for Economic co-operation and Development - Paris 1971.

of high tariffs on luxury goods and the use of excise taxes to limit the domestic production of luxury goods. Future policies should aim at correcting regional imbalances in the distribution of services. Their locations would have to be chosen carefully to channel them to where they are desirable and needed.

The existing system of allocating government expenditure is biased towards concentration in urban areas and modern agriculture. What is needed is a change in this tendency towards channelling more investment into the traditional sector. Moreover, private investors have to be encouraged towards this sector through more incentives.

Finally, one major problem is to develop effective ways of making the utilization of the country's manpower a positive factor in accelerating the pace of development. This and many of the problems of employment in the Sudan can only find a proper approach if employment planning is considered an integral part of overall development planning.

2.5 Conclusions

The seriousness of employment problems in the Sudan, the rate of unemployment, underemployment and the way income is distributed have been discussed in this chapter, and the different dimensions of the employment problems identified. Unfortunately, fully

satisfactory measures cannot be given as the available data are generally weak and its reliability is doubted.* In addition the danger of judging the employment situation in the country by concepts and measures derived from the rich countries has to be recognised. In spite of these reservations some attempts have been made to measure the extent of employment problems in the country.

Open unemployment rates of about 6 per cent compare very favourably with unemployment rates in many other less developed countries. The explanation probably lies in the higher rates of rural-rural migration in the Sudan. Unlike many other countries, the Sudan has a large modern agricultural sector offering employment on a seasonal basis to a large number of people.

However, the picture darkens when we consider people who are underemployed on seasonal basis in agriculture. Throughout the economy productivity is much lower than is desirable given the nation's resource endowment. Thus the main employment problem is to provide fuller employment and higher income for the agricultural labourforce operating well below its potential.

Closely related to employment problems is the whole question of income distribution. In the Sudan the data available on income are generally weak, resting on the

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* For the weaknesses and limitations of various sources of statistical information see chap. 1.5.

results of assorted household surveys. Per head income in the Southern and Western Provinces is found to be well below the average for the country as a whole. These provinces are also far behind the advanced Khartoum and Blue Nile Provinces with regards to the provision of public services. Most of the industrialization has taken place in Khartoum Province. Agricultural development has led to a marked dualism. However, such dualism has been mainly caused by the development policies adopted. This will be discussed further in the next chapter.

CHAPTER 3

Employment Problems and Development Planning in the Sudan

3.1 Introduction

The previous chapter focussed on the employment situation in the Sudan. The lack of adequate statistical data made it difficult to ascertain how far unemployment, underemployment and poverty prevail in the country. In spite of this reservation, the available data support our proposition that underemployment is the dominant feature of the employment situation in the Sudan. Quantitatively it is far more important than open unemployment. The deterioration of subsistence agriculture, the primitiveness of the methods of cultivation in use, the lack of irrigation facilities and the marked fluctuations of agricultural activity have kept the majority of the labourforce in the traditional sector with low productivity and income.

As mentioned earlier, the Sudan's economy is characterized by a dualistic structure, with a lagging low-income traditional sector and a high-income modern sector. The main reason for the emergence of the dualistic economy - and thus employment problems - is the government development policies and plans which

have ignored the traditional sector. These are mainly fiscal, monetary, exchange, wage and tariff policies adopted to promote economic growth. In this chapter an attempt is made to examine the manner in which employment problems have been dealt with in government development plans and programmes. In section one the history of development planning is reviewed. Section two and three respectively consider various aspects of employment in other less developed countries and in the Sudan. In both, the objective of general economic development and the increase in national income have figured much more prominently than the employment objective. Employment has been looked on as a by-product of general economic development.

Most of the plans and programmes that have been adopted in the Sudan appear to be concerned with raising economic growth in the modern sector. To achieve this, the greatest emphasis was placed on industrialization, mainly in the modern sector. While there is little doubt that employment problems in the country will not be solved without high rates of growth, it does not follow that measures to promote economic development will of themselves suffice to provide enough jobs and equitable distribution of the benefits of development. The surest way of making certain that the improvements in levels of living that come about as economic development proceeds will be

widely shared, is to give employment objectives weight in the choice of alternative paths of economic development.

Employment considerations in development plans were given priority only recently after the ILO employment strategy mission to the Sudan. Section four is devoted to discussing the effect of the ILO report on the new Six Year Plan (1977/78 - 1982/83). Employment targets were set for the first time in the plan, and emphasis was placed on development of the traditional sector. In section five some problems and weaknesses of planning in the Sudan are discussed. The last section deals with emigration of skilled labour from the Sudan. At present while the country has a surplus in certain professionals, it suffers from deficits in technicians.

3.2. The History of Development Planning in the Sudan

It is generally assumed that planning accelerates economic development, especially in less developed countries where shortage of finance, technology, skilled manpower and other factors might retard economic growth. The idea of planning as a means of economic and social development has been recognised and adopted only recently in the Sudan and is still in its infancy. For the first time, comprehensive socio-economic development planning was introduced in the country with the

formulation of the Ten Year Plan in 1961/62. Before that year development in the country was approached through an ad hoc investment programme of projects generally lacking any unifying comprehensive development strategy.

The history of development policy in the country can be divided into three periods:

(a) the period before the Second World War

(b) from the end of the War until 1960

(c) the period after 1960.

The period before the Second World War could be identified as semething similar to a "laissez faire" economy. The 1945-60 period witnessed a series of public investment programmes. More recently, conscious attempts at comprehensive socio-economic planning have been made.

3.2.1. The Period before the Second World War:

Before the Second World War the Sudan economy was characterized by a colonial dualistic structure. The economy was heavily dependent on cotton-growing in the Gezira Scheme. During this period a "general reserve account" was established to act as a fiscal stabilizer. When surpluses were realised in good crop years, they were credited to this account, which was subsequently used to finance minor capital

expenditure projects. In bad crop years, current revenue was supplemented by credit from the same account. In 1949 the general reserve account came to be known as the "Revenue Equalization Account".

There were no definite plans or programmes for public investment. Whatever capital projects were conceived during this period, were financed on an "ad hoc" basis from the "General Reserve Account", and development expenditure was therefore constrained by the level of this account. There were, however, small capital projects with a low foreign exchange component, mostly confined to social services. The political and economic philosophy at that time was moulded by "laissez faire" attitudes and the expectation that economic leadership would be provided by private enterprises which were mainly foreign. The role of the public sector was understood to centre on the provision of basic infra-structure services and an encouraging climate for investment. Commercial credit policy was designed to serve private investment and credit operations were almost exclusively confined to short-term finance of export-import traffic and the provision of "operation capital." The public sector had no control over the level or uses of commercial credit. In the absence of a central bank for clearing, this was determined by correspondence accounts between

local commercial banks.

In the absence of any statistics on GDP during this period, it is difficult to quantify economic growth. However, due to the expansion of trade into the traditional sector, exports witnessed a substantial growth. It is estimated that the rate of growth of exports averaged about 8.6 per cent per annum between 1910 and 1949. Although there was no comprehensive development planning policy during this period, some substantial economic development had evidently taken place.

3.2.2. The Period between the Second World War and 1960:

The main emphasis of public investment continued to be on the provision of infra-structure and social services, while the private sector was left to lead in productive investment. The 1946 - 1951 Development Programme devoted more than 50 per cent of its resources to public works, agricultural research and rural water supply, out of a total cost of about LS 14 million. A second five-year programme was introduced, consisting of some expenditure projects without a comprehensive development framework. In 1951 the first nucleus of a planning organization was created in the form of the "Development Branch" within the Ministry of Finance. Its basic function was to formulate and control the annual development budgets.

The cotton booms of the late forties enabled the government to finance these development programmes without recourse to deficit financing.

After the country's independence in 1956 and until 1960 a series of annual development programmes were introduced. The total development expenditure during this period was about LS 69 million. A marked deviation was made for the first time from the tendency to invest in social services and infra-structure towards productive schemes. The latter constituted 56 per cent of the total investment between 1956 - 1960. The major schemes introduced during this period were the Managil, Mechanized Crop Production and Geneid Sugar Factory. Financial and technical assistance from foreign sources was encouraged for the first time for the preparation and execution of these projects.

3.2.3. The Period after 1960:

The first attempt at comprehensive planning in the country was made in 1960. A long-term development plan was announced covering the ten year period from 1960/61 to 1970/71.* The plan set out broad and unquantified objectives, aiming at increasing and broadening the country's national product, expanding exports and import-substitution, improving social

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* The Republic of the Sudan, Ministry of Finance and Economics "The Ten Year Plan" .... op.cit.

conditions and services, and maintaining a stable price level. The total gross fixed investment envisaged by the plan was LS 565 million, of which 337 million was to be invested by the public sector.* It was planned to raise the GDP from its 1960/61 level of LS 355 million to LS 584 million at constant prices over the ten years. According to the estimates of the Ministry of Planning, GDP in fact reached LS 564 million by the end of 1969/70. In the first five years of the plan period, actual gross fixed investment, at LS 309 million, exceeded the plan target of LS 269.4 million.

The behaviour of the private sector was simply assumed in the plan, and no policy measures were explicity designed to influence the volume or the composition of private sector investment. The share of the private sector in total planned investment increased from 26 per cent in 1962/63 to about 50 per cent in the terminal year of the plan. Dependency on cotton declined from 65 per cent of the total volume of exports to 61 per cent, while the share of agriculture in GDP declined from 57 per cent to 51. The plan can be criticised for its ineffectiveness in influencing the private sector. Moreover, it was mainly

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* R. Guston." Problems of Economic Growth and Planning" the Sudan Example. Some aspects and implications of the current Ten Year Plan. Berlin, Spinger 1966.

confined to the modern sector with very little attention to the development of the traditional sector.

Although the plan was virtually abandoned by the end of 1965, its targets in quantitative terms continued to provide guidelines for development planning. The Ten Year Plan was the first deliberate attempt at economic planning, and experience gained from it was a useful input in the formulation of future plans.

Following the change in political environment in May 1969, a new development plan* covering the period 1970/71 to 1974/75 was introduced to supersede the Ten Year Plan. For the first time a Ministry of Planning was created in 1970, and work on the Five Year Plan was started with the help of a team of Russian experts. The Plan aimed at increasing the GDP at an average rate of 7.6 per cent per year. To achieve this, it included a total investment target of LS 215 million by the public sector and LS 170 million by the private sector.

In November 1972, the political authorities, convinced of the inadequacy of the Five Year Plan in the fields of transportation and large-scale productive

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* The Democratic Republic of the Sudan, Ministry of Planning "The Five Year Plan of Economic and Social Development" ..... op.cit.

schemes, decided to supplement the Plan with a five year "Interim Programme of Action".* Although the Interim Action Programme was supplemented to the Five Year Plan, it remained as a distinct frame-work for general development policy. It represents a commitment from the political leadership towards the attainment of several major objectives during the presidential term of office. It sets out national, sectoral and sub-sectoral priorities on targets. The highest priorities were given to transport and the attainment of self sufficiency in basic consumption items such as sugar, wheat and textiles.

A new Six Year Development Plan was introduced in July 1977 covering the period 1977/78 to 1982/83. This envisages a total investment of LS 2,670 million, of which LS 1,570 million will be spent by the public sector and the remainder by the semi-private and private sectors. Of total public sector investment, 27 per cent will go to agriculture, 21 per cent to industry, power and tourism, 20 per cent to transport and communications and 4 per cent to social services. The remainder will cover general regional developments and will provide a general reserve. The estimated annual average growth rate target of the plan is 7.5

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* The Democratic Republic of the Sudan, Sudan Socialist Union - Preparatory Central Committee "Phased Programme of Action". Khartoum 1972.

per cent.

3.3. Employment and Economic Planning

3.3.1. Employment Planning in Less Developed Countries:

Recently there has been a widespread realization of the importance of the "human factor" in economic development. Research and experience have indicated that the contribution of physical capital alone is by no means as dominant as had at one time been imagined.* While at the beginning of the last decade the problem of less developed countries were viewed essentially in terms of producing wealth, by the end of the decade it became widely acknowledged that the crucial factor was not production but rather the capacity to produce which is inherent in people. Economic growth in the advanced countries appears to be attributable in larger part than was previously supposed to human skills rather than to physical capital.**

Economic planning in many less developed countries has up to the recent past been concerned with maximising

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* Fathi El Rashidi "Human aspects of Development." International Institute of Administrative Sciences, Brussels, 1971.

** The United Nations Development Decade. The report of the Secretary-General E/3613, May 1962, P.2.

production, setting the requisite investment targets, and specifying in greater or smaller detail the concrete programmes and projects to attain these objectives. The problem of employment was not considered as a basic objective in making development plans. Although many of these countries were facing different forms of employment problems, no employment targets were set in these plans.

It is increasingly recognised that dealing with employment problems is not merely a matter of accelerating economic growth, although sustained and high rates of economic growth are essential for expansion in productive employment. Indeed a number of less developed countries experienced a very rapid growth of national income during the last decade without any improvement in the employment situation. Thus it is not possible to concentrate on economic growth alone to achieve high rates of employment and equitable income distribution.

Employment must take its place, alongside the gross national product, as a central object of concern in development planning and as an essential criterion in the examination of progress for development.* This recognition represents a major

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* Keynote address by the former Director-General of the ILO David A. Morse, at the Cambridge Conference on Development held at Cambridge University, United Kingdom - 13th - 24th September 1970.

departure from the views that prevailed during the sixties when employment tended to be seen simply as a by-product of economic development and it was implicitly or explicitly assumed that unemployment and poverty would disappear if only the rate of economic growth could be accelerated.

Employment planning was regarded primarily as a means of ascertaining manpower availability for industrial activities and of forecasting future requirements in the light of the planned expansion of the industrial sector. Within this limited or selective objective, there was usually another emphasis, namely, the concern with the supply of and the demand for high-level manpower as a guide for planning the improvement of training facilities. The rural sector was mostly ignored in many less developed countries because it was difficult to estimate the manpower requirements in agriculture.

3.3.2. Employment Planning in the Sudan:

In our review of the history of economic planning in the country we realised that planning came at a late stage in 1960/61. Employment considerations were neither seriously considered nor integrated into any planning exercises. In such a situation it is not possible to speak of targets having being reached or not. No employment targets were included

in either the Ten Year Plan or the Five Year Plan, and little attention was paid to the country's employment problems. However, some vague terms were inserted in these Plans about employment in general. In the Five Year Plan it was mentioned that one of the objectives of the Plan was to "promote the prosperity of the people through the growth of productivity, the realization of full employment and the enhancement of the employees' intrinsic skills and capabilities." No mention was made of how to realize full employment. Moreover, no consideration was given to regional distribution of income, and as mentioned before the Ten Year Plan was mainly a "modern sector plan" as it gave little consideration to the traditional sector. Under these circumstances, manpower planning can have very little value, since basic decisions that affect manpower policy are taken without the manpower viewpoint being introduced into the overall planning exercise.

Rapid economic growth has been a primary objective of the policies adopted by most governments since the country's independence. The policy-makers believed that it is through a maximisation of the use of economic resources that it would be possible to reduce within a short time widespread under-

employment, poverty, illiteracy and disease. However, the growth strategies adopted, though they succeeded in achieving a high rate of growth, failed to satisfy other social objectives.* For example, economic development seemed to be associated with an increase in inequality between different regions of the country. The distribution of income became more skewed in favour of the modern sector. Conditions were made worse for the poorest 30-40 per cent of the population, concentrated in the traditional sector of the economy.

In 1966, the government began a policy of guaranteeing employment to all graduates of universities and post-secondary institutions; up to 1970, this policy extended to the products of secondary schools. In 1968, due to the increase in unemployment especially among secondary school graduates, an Employment Relief Fund was set up to relieve unemployment.** It has been partly responsible for the recent explosion of higher education

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* ILO "Growth, Employment and Equity" ... op.cit.

** Sanyal, B.S. and E.A. Yacoub, "Higher Education and Employment of Graduates : the case of the Sudan" - UNESCO, International Institute of Educational Planning, Paris, 1975.

and for the growth of public expenditure. The main purpose of these policies was to absorb surplus skilled manpower. Apart from financial cost, the policy of guaranteeing employment to secondary school graduates is likely to have deleterious effects both on labour market and on the educational system.

It was only in the early 1970's that the government started to become deeply concerned with the increasing troublesome problems of employment and started to appreciate the critical nature of the employment issue and showed some determination to pursue an active employment policy. Seeking assistance in this endeavour, the government requested an ILO World Employment Mission in 1973 to prepare the ground for, and report about, a future Employment Strategy Mission similar to the missions launched in Colombia, Kenya, Sri Lanka, etc.

3.3.3. The ILO Mission and Development Planning in the Sudan:

The primary objective of the ILO report* was to provide the country with an independent view of its employment and development problems and potentials and to propose strategies and policies for action. In addition, it was aimed at advising the government on such matters as the steps to be undertaken to implement the recommended employment strategy within the frame-

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* ILO "Growth, Employment and Equity" ..... op.cit.

work of the development plan and the priority areas for development. However, the report was in no way a substitute for the government development plan, but was intended as a useful input into the process of drawing up a development plan.

The report represents a major departure from the views that prevailed in formulating the Ten Year Plan and the Five Year Plan, when employment was considered simply as a by-product of economic development. The development strategy of the Six Year Plan (1977/78 - 1982/83) aims not only at a higher growth rate as in previous plans, but also emphasises the reduction of inequality in the distribution of income.* For the first time in the country's history of planning, the composition of growth is geared towards the transformation of the traditional sector and the development of the less privileged regions. As the ILO report recommended, the South is considered a "special case" and treated as such. In addition to the investment allocations for all the development projects to be executed by the central government, a specific fund amounting to nearly LS 200 million from the General Reserve Fund is directed to cater

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* O.D. Hoerr, "Employment, Income and Growth - Programme for renewing development in the Sudan." - Paper presented to the ILO Comprehensive Employment Strategy Mission Preparatory Conference, Khartoum, February 6th - 8th, 1975.

for the Southern region.

It is evident, therefore, that the ILO report played a very important role in the formulation of the Plan. The recommendations of the report greatly affected the Plan objectives, strategies and policies.* The overall strategy for economic and social development during the Plan period aims at securing optimum utilization of the country's physical, human and financial resources. Moreover, it aims at improving the living standards of the population, increasing economic growth and achieving social equity and balanced regional growth.

There is now greater insight into the importance of the human factor in economic and social development, and the urgent and necessary need to mobilise human resources in the country. For the first time employment targets were set as well as other targets, to gear policy towards their achievement in the Six Year Plan. The Plan included a separate chapter about the manpower situation at the outset of the Plan, on the likely movements of manpower supply and demand, on expected labour surpluses and shortages, and so on. Population projections, labour-force growth and sectoral distribution of the economically active working force were also estimated.

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* A.H. El Tigani, "The effect of the ILO ..... op.cit.

A basic objective of the Six Year Plan is to redistribute benefits of development as equitably as possible among various income groups and regions. In order to achieve this objective, the Plan pays more attention to the development of traditional agriculture and livestock. This objective is in line with the ILO report, which states that in recent years there have been quite remarkable increases in the production of groundnuts and vegetables, from traditional small-scale agriculture and animal husbandry. With the introduction and encouragement of new techniques and simple technical improvements, production in this area could be increased. According to the Six Year Plan, modern inputs, farm credit, machinery hire service facilities and feeder roads would be provided in traditional areas. Moreover, technical assistance and access to credit facilities would be provided to the informal sector in urban areas.

Fiscal policy would be used to promote equitable distribution of incomes and social services. Tax policies would be designed to match with this goal. Unlike industry, agriculture has generally suffered dis-incentives.* Price fixing, export taxes and bans,

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* Suliman, A.A. "Tax incentives for Industrial Investment in the Sudan" - in International Bulletin for fiscal Documentation. August 1973, P.P. 315 - 323.

and export marketing by state agents caused reductions in agricultural prices affecting the farmers incomes. According to the Six Year Plan effective policies and incentives would be adopted to expand exports and encourage agricultural production. This is in line with the ILO recommendation that export duties, import duties and excise taxes be so revised as to encourage agriculture in general and agro-industry in particular and that, in addition, less reliance be placed in the future on quantitative restrictions.

In 1974 the Sudan Gezira Board decided to change the cropping pattern by reducing the area under cotton from 600,000 feddans to 400,000 feddans and correspondingly to increase the area under wheat and groundnuts. Moreover, most of the agricultural operations for the last two crops were to be fully mechanised. These steps were mainly taken to reduce the peak demand for labour. However, the ILO report recommended a new emphasis on the improvement of yields in irrigated agriculture rather than crude expansion of areas under crops. They also requested re-consideration of policies of mechanization in modern agriculture. While no specific policy on this matter is included in the Six Year Plan, there is evidence that the Gezira Board reconsidered its diversification policies. In 1975/76 the areas under cotton were increased again from 400,000 feddans to 500,000 feddans,

while those under wheat and groundnuts were considerably reduced.

However, not all the recommendations of the ILO report were entirely implemented. Some amendments and changes have been incorporated in certain issues while others were subjected to further studies due to their inter-relationship and political considerations. Examples of the ILO recommendations not implemented are those in the fields of education, and training, public administration, seasonal migration and mechanization of agriculture.

While the ILO sees no economic justification for the two proposed universities at Gezira and Juba the government insisted to establish them. The recommendation of the ILO about the reform of primary education to a new 4 + 2 years system and reducing the rate of growth of secondary and tertiary-level enrolments to the rate of growth of modern-sector jobs was not seriously considered. While there is some sort of educational planning in the country, unfortunately it is not integrated into the overall development planning. Manpower and educational planning ought to be seen as an integral part of the overall development planning. Manpower and educational planning are becoming an important tool in making the best use of human resources by providing estimates of future manpower needs for development and of the educational

and training facilities necessary to produce the required educated and trained personnel. Educational planning should in part be directed towards estimating future manpower requirements and training needs in the light of the overall development objective, detecting imbalances and taking policy measures to correct them. The country's educational system, which is the cause of many employment problems, needs to be reconsidered in accordance with the ILO recommendations.

The ILO report recommended the creation of a new ministry to handle rural development, and the assignment of a senior field officer with his own planning staff to each province. The planners, however, saw no point implementing this proposal following the experience of the Ministry of Co-operation and Rural Development in 1969, which lacked any clear identity of purpose and never achieved any powerful influence in rural areas, in addition to the conflict of its aims with other ministries.

As shown in Chapter 2, while the Plan objectives are in line with the ILO report recommendations and strategy, the Plan allocations do not support this. The total investment envisaged by the Plan in the rural sector fell short of that needed to achieve social justice. Moreover, the industrial sector will be paid more attention than the agricultural sector

as it receives more investment. However, the value of the ILO report lies not only in its present recommendations and analysis, but in the contribution which it may make to further analysis and debate within the Sudan. The 1977 symposium on the effect of the report on the Six Year Plan and the proposed Arkweet conference to be held late this year to discuss the report are some evidence.

3.3.4. Some Problems and Weaknesses of Planning in the Sudan:

An important factor which poses a major problem to development planning in the country is its administrative and technical organisation. In 1969 a new Ministry of Planning was created and assumed responsibility for drafting and implementing plans. Later, a distinct division within the Treasury was made responsible for the preparation and revision of plans, their continuity, progress, reports on them and preparation of annual adjustments of them. To carry out these different tasks successfully, the plan organisation should occupy a high position in the national administrative structure so as to be able to secure constant political backing in its co-ordination operations and in obtaining access to sources of information. Unfortunately, the present administrative organisation is far from satisfactory

and lacks qualified personnel.

Lack of adequate statistics has been one of the main obstacles to the preparation of plans and to the improvement in methods of planning. The situation has been made worse by the fact that planning institutions are administratively separate from statistical agencies. However, recently there has been a tendency to bring these two functions within the planning agency.

Labour-supply projections are sometimes obviously inaccurate, either because the data are lacking, as in the case of traditional agriculture, or because the planners sometimes make unrealistic assumptions. For instance, in the Six Year Plan it is assumed that labour participation rates will remain constant during the plan period. Moreover, forecasts of manpower demand are not made with sufficient care and might be unrealistic, as important factors such as the private sector behaviour are ignored.

In the Six Year Plan the employment target was broadly decided at the aggregate level, in conjunction with the total volume of investment. The average capital intensity was fixed without employment being considered, and the additional employment was achieved as a by-product. It would be more useful if fixing employment targets entered into the planning process

at the project level. However, the difficulty of estimating agricultural employment, due to regional differences in farming, cropping patterns and use of machinery might be a reason for fixing the target at the aggregate level.*

One of the main obstacles to the execution of the Plan is the lack of capital. The successful performance of plans depends not only on budgetary income, but to a great extent on the availability of capital from external and local resources.** The forecast of a rate of growth of 7.5 per cent and a total investment of LS 2,670 million seems to be without apparent justification, and the actual investment and growth is likely to be much lower. Just as the mere existence of the plan will not automatically create economic growth, neither do its employment and training forecasts magically put themselves into effect. Planning proper begins when a plan is systematically implemented. Unfortunately, the Six Year Plan does not contain a coherent strategy for putting its employment forecast into effect. It only contains an overall estimate for each sector, instead of being related to the actual

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* Karl Wohlmuth, "Employment Creation in Developing Societies - the situation of labour in Development Economics." - Praeger Publishers, New York 1973.

** Paul G. Clark, "Development Planning in East Africa." East African Studies No. 21 East African Publishing House 1965, PP. 98 - 101.

implementation of carefully detailed projects. Because of this, checking and evaluating progress in the carrying out of the plan will be difficult if not impossible.

In spite of all these technical and administrative problems, the Six Year Plan is unique in its consideration of employment problems. For the first time more emphasis was given to equity, growth and employment. Problems of low productivity and low incomes in rural areas were seriously considered. However, both the ILO report and the Six Year Plan ignored the problem of emigration, which is not only a serious employment problem in itself but is likely to cause problems of labour shortages and low productivity. The coming section is devoted to discussing this matter.

3.4. Emigration of Skilled Labour

A major employment problem which has been ignored by both the ILO report and the Six Year Plan is the migration of skilled labour to oil-rich Arab countries. The reason why it was not considered by the ILO report might be the fact that at the time of the report the problem was not so serious and it has been aggravated in more recent years. In the absence of any reliable information on manpower requirements and precise statistical information on those who leave the country, it is very difficult to establish whether professional

and technical migration from the Sudan is indeed a brain-drain or an "overflow". Although migration records contain details of personnel coming into the country, the corresponding information regarding Sudanese working abroad is not comprehensive. However, if the long queues of passport applicants and long lists of absenteeism published daily in the two official newspapers could be an indication, the problem is getting serious.

Most of the migrants seem not to be new graduates or new entries to the labourforce who could not be absorbed into employment. Rather, they are those already employed but seeking better terms of remuneration for their experience or qualifications. Although emigration first started only among highly skilled labour, large numbers of unskilled labour followed at a later stage. The direction of the brain-drain is mainly towards oil-rich Arab countries, the major part going to Saudi Arabia. These countries which are, at present, inneed of skilled personnel for their development are welcoming qualified people from abroad. The Sudan, even if it pays special attention to the salaries paid to trained and skilled personnel, cannot compete with the incomes earned by skilled personnel in these countries. While the Sudan has a surplus in certain professionals at present, it suffers from deficits in technicians. It has been estimated that

the imbalance in skilled manpower will continue until 1995 even given massive expansion of Universities and Higher Institutes, as shown in the table below:

Table 3.1 A Plan making Higher Education Meet the Demand of Higher Level Manpower (000)

Year	Universities (Professionals)			Higher Institutes (Technicians)		
	Supply (Output)	Demand	Surplus	Supply (Output)	Demand	Surplus
1975	3.0	2.0	+ 1.0	1.0	2.0	- 1.0
1980	4.6	4.2	+ 0.4	2.3	4.2	- 1.9
1985	8.1	8.5	- 0.4	7.0	8.0	- 1.0
1990	18.0	19.0	- 1.0	17.0	18.0	- 1.0
1995	30.0	30.0	00	35.0	35.0	00

Source: M. El Amin, "A comprehensive strategy of education for Sudan" - a paper presented to the symposium on ILO report. Khartoum 1977 - P.19.

3.4.1. Some Causes of Emigration:

There are many factors propounded as possible causes of skilled and unskilled labour migration from the Sudan. Among these the most commonly mentioned and most widely believed to be the explanation of this phenomenon is the economic or material advantages offered by rich Arab countries. However, the causes

of migration differ for different persons with different qualifications. While many of the skilled persons may be motivated by the income differentials, unskilled workers may be seeking any employment. In some cases it was estimated that migrants are paid ten times more than their previous salaries in the Sudan.

As for skilled labour, while the economic factor may be the most important factor for the majority of them, other factors seem to be partly responsible. It is a complex phenomenon brought about by "attractions and repulsions acting on an individual" * from two different economic, professional social, political and cultural environments, and his reaction to them which in turn is heavily determined by his motives, attitudes and values. In short the brain-drain appears to be the result of a combination of all or some of these factors, rather than the consequence of any one of them.

While on the one hand it is generally recognised that the country needs doctors, engineers and technicians, the country's wage and salary structure does not reflect this. According to the system of salaries in the public sector, all graduates of the same year of all colleges are paid equally irrespective of their qualifications, kind of work or efforts needed. However, it is common

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* D. Steven, Migration of Scientists, Nature March 1964.

to find salary differentials between different government departments which are not based on objective criteria. These, no doubt, cause frustrations which might lead to decisions to emigrate.

Skilled personnel as well as other trained people in the country are always interested in holding administrative jobs. They usually prefer to work in urban areas, specially in Khartoum, in spite of need for them in the field in rural areas. Lack of amenities in rural areas is an important factor in causing surplus skilled personnel in urban areas to overflow not to the rural areas within the country, but to urban areas in other countries.

Because of lack of co-ordination between educational planning and manpower planning, there is a problem of overproduction of graduates in a particular field while there is a lack of them in others. Thus many graduates accept employment in fields not in line with their level of education. This lack of relation between what had been learned and the actual job requirement leads to inefficiency in job performance and a lower level of productivity. Many of these prefer to work abroad in fields relevant to their education.

3.4.2. Costs and Benefits of Emigration:

The costs and benefits of emigration cannot be measured according to a single scale. While the number of workers in certain fields is evidently in excess of the current requirements of the country, any flow in other fields may cause shortages of labour and hence a drop in productivity. Deprived of the top-level skill and knowledge of a senior professional worker the entire production process in a plant or workplace may suffer. Shortage of skilled manpower was one of the main reasons for inadequate utilization of the productive capacities of private sector enterprises during the Five Year Plan.*

Worst of all, however, is the loss of some key individuals possessing qualities of leadership. As has been pointed out, exceptional or outstanding individuals are unlikely to be satisfactorily replaced even if a country has dozens of men with the same educational qualifications waiting to apply for their posts if they leave.** As a result of the migration of skilled manpower, two kinds of losses may be expected.

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* S. Nimeri "The Five Year Plan (1970/75). Some aspects of the Plan and its performance." Monagraph No. 1 Development Studies and Research Centre - University of Khartoum - 1977. P.7.

** George B. Baldwin, "Brain Drain or Overflow?" in Foreign Affairs, January 1970, P. 363.

1. The educational costs of producing the skills and professional competence.
2. The economic and social benefits forfeited as a result of the loss of the skilled migrants' participation in development efforts.

However, the loss to the country may even be more than the cost of education of the migratory national. The potential worth of his expected contribution, whether direct or indirect, to the national economy in the future would be much more than the cost of his education. Further, less skilled workers are hired to assist high level personnel. The loss of highly trained people, therefore, would result in the unemployment or underemployment of such workers who might otherwise be employed with him. The direct social cost of education is also extremely high as education is highly subsidised and financed by the State.

As far as the benefits of emigration go, many of the emigrants keep their links with the country and make substantial remittances to their relatives. However, many of them smuggle part of their earnings in such a way that the country's foreign exchange position is not affected. This is mainly because the legal exchange rate is nearly half the "Black Market" rate. Moreover, a fraction of the migrants eventually return home with an improved financial status,

greater knowledge and additional skills.

Emigration of certain kinds of labour has contributed in dealing with some employment problems. It appears to serve as a social safety valve to the unemployed and underemployed, it has improved the living standards of part of the population and provided and made available certain durable consumer goods in the market. Nevertheless, the existence of unemployed or underemployed manpower would be better regarded not as a justification for their outflow but as evidence of the need for measures to secure their effective employment or for better manpower planning.

3.4.3. Measures to Deal with the Problem:

In developing a strategy for controlling emigration, consideration should be paid not only to the manpower aspect but also to basic human rightts. The imposition of a total ban on emigration might be ineffective, besides violating the basic human right of freedom of movement and residence. Any unreasonable interference with freedom of movement would fail to secure the support of the public and might even strengthen the desire to emigrate. So far the government has taken some restrictive measures relating to employees in the public sector. They are not allowed to emigrate unless they have permission from the labour office. Nevertheless, the measures

taken so far seem to be inadequate as the government employees have their own means of avoiding these restrictions.

Policies have to differ for different persons carrying different qualifications. The socio-economic development of the country, requires the co-operation of professionals, scientists and technical personnel, Patriotic mobilisation combined with appropriate material incentives has to be the direction in which the country moves to cope with the problem. A review of the salary scale of certain trained manpower may be advisable. Further co-ordination is necessary between economic planning, manpower planning and educational planning, and these last two have to be an integral part of the first. However, all these measures for limiting the outflow of manpower will be meaningless unless suitable and sufficient opportunities in the country are created through further acceleration of the country's economic development resulting in optimum utilization of manpower.

3.5. Conclusion

Our examination in this chapter of employment plans and policies makes it evident that employment considerations were neither seriously considered as

a basic objective nor integrated into any of the previous planning exercises. Employment was simply considered as a by-product of economic development. Planners in the country thought that attainment of high rates of growth would automatically alleviate employment problems. Such a development strategy had led to a marked inequality between regions. The traditional sector, with little capital accumulation and limited productive investment, suffered from underemployment and poverty. Measures are needed to provide a geographically balanced growth of employment and income through a policy of regional location of industry.

Employment considerations in planning were given priority for the first time in the current Six Year Plan. For the first time employment targets were set in the plan as well as other targets. In order to achieve equity the plan pays more attention to the development of traditional agriculture and livestock. However, as shown in the previous chapter, while the plan objectives are in line with the ILO recommendations and strategy, unfortunately its allocations do not seem to support this. If future growth in the traditional sector is to improve the living standard of the population in a rapid and balanced fashion, major changes in development strategy will often be

required. More investment in the traditional sector is needed. Policy measures affecting the pattern of investment include the direct allocation of resources by the government and efforts to influence private investors' decisions.

CHAPTER 4

Population Growth and Regional Distribution in the Sudan

4.1 Introduction

Population growth has a direct relationship with employment through its effect on the supply of labour and indirect effects on national income and capital accumulation. The ratio of dependent to working population rises with increases in fertility. Those who are working have to share their incomes with more people, leaving less for saving and capital accumulation. Moreover, with high rates of population growth, a large share of savings may have to be devoted to the provision of social services such as education and health, leaving less saving to be invested in direct productive projects. Such projects are likely to generate productive employment for the existing labour force improving their standards of living.

The number of people seeking work in a country depends mainly on the size and age composition of its population. The rate of growth of the labour force depends mainly on the rate of growth of population, other factors such as participation rates of women

usually playing a relatively minor role. An increasing scarcity of land caused by population growth tends - other things being equal - to accentuate rural-urban migration, thus intensifying the problem of urban unemployment and the problem of rural-urban imbalance.

Since population growth through its effects on the community's consumption and production of goods and services is believed to have a great effect on most of the problems of employment, an attempt is made here to throw some light on population growth in the Sudan. As the country's present population composition is mainly affected by past trends in its population growth the first part of this chapter is devoted to a study of population of the Sudan before its independence in 1956. However, available data about the subject during that period was scanty and unreliable. A further look through the period between the two national censuses of 1955/56 and 1973 was necessary to clarify the picture. Section 4.2.2. of this chapter is mainly about this period in general with particular emphasis on studying variations in population densities.

The purpose of Section 4.3 of this chapter is to examine analytically the hypothesis that the present population distribution of the country makes it difficult to have maximum utilization of manpower. Different

measures of population pressure on land are presented and compared with other countries in Africa. While the country as a whole has a favourable man/land ratio, great variations exist between its different provinces. In particular, the three provinces of Kassala, Blue Nile and Kordofan have a relatively high man/land ratio. The vast majority of land under cultivation is under these provinces.

As the man/land ratio is affected by the national growth of population, it was found useful to see in Section 4.4 the fertility levels and trends in the country. In addition, other parts are devoted to the age structure of population since it is a critical factor in the determination of the size of labour force. Further, population distribution between rural, urban and nomads are discussed. The nomads, though they are not expected to affect the labour supply in agriculture at present, are likely to settle in future and practice crop cultivation. The last part of the chapter is devoted to migratory trends of the country's population between the two censuses.

4.2. Population Growth

4.2.1. Population Growth before 1955/56:

The first national census of the population in the Sudan was taken in 1955/56 when the total for the

country was ascertained to be 10,262,536. The organization and execution of this census was preceded by successive and fairly regular estimations of population from tax lists and published in the Sudan Almanac, which from its first appearance in 1903 has been issued annually, apart from the years 1942 to 1948. Before 1913 only estimates for the whole country were published and after 1913 province estimates were considered. The estimates were based on tax lists e.g. poll tax, land tax, date tax and animal tax. The number of taxpayers would then be multiplied by a certain multiplier to estimate the total population.*

Another valuable source for population estimates before 1913 was Sir R. Wingate's "Report on the Soudan for 1903 to Lord Cromer" which gives tabulated estimates of population by provinces. In succeeding years, from 1907 revised estimates were included in the Annual reports on the Sudan, and in 1908 it was stated that the revised total of 2,400,000 was based upon estimates from governors of the provinces.

According to these, estimates for the present area of Sudan appear to have increased from slightly

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* P.F.M. McLoughlin "A note on the reliability of the earliest Sudan Republic Estimates." Population Review Vol. 2, July 1963, PP. 53 - 64.

less than two millions in 1903 to above ten millions in 1955/56; in the simplest phrase it has multiplied fivefold. This might seem to be impossible and could be an indication that data collection was not reliable at that time. However, there are reasons to believe that 1900 was the turning point in the demographic history of the country. The preceding century had witnessed the extermination of whole tribes by slavery, disease, warfare and famine. Later the condominium ended both the slave-trade and inter-tribal warfare. The population has expanded by multiplication of indigeneous tribes and by continued immigration especially from West Africa.

Table 4.1 overleaf is extracted from different sources to show the estimates of population in the country at different periods. From the table it is apparent that population estimates were unreliable. Sudan in 1882, two years before the Mahdist regime had about eight and a half million people. This was reduced to less than two million after twenty years - a fall of $6\frac{1}{2}$ millions. The losses were attributed to disease and warfare. However, it is likely that the Anglo-Egyptian rule had made an underestimation in 1903 to exaggerate losses during the Mahdya rule. In addition it is likely that the

Table 4.1 Estimated Population for the Sudan 1882-1956

Year	Total Population	Increase or Decrease	% Increase or Decrease	Average Annual rate of increase or decrease
1882	8,525,000	-	-	-
1903	1,870,000	- 6,654,500	- 78.1	- 3.8
1907	2,000,740	+ 130,240	+ 7.0	+ 1.75
1913	2,706,867	+ 706,127	+ 35.3	+ 5.8
1923	5,852,729	+ 3,145,862	+ 116.2	+ 11.6
1932	5,605,806	- 246,923	- 42.2	- 4.7
1936	5,719,828	+ 114,022	+ 20.3	+ 4
1948	7,547,200	+ 1,827,372	+ 31.9	+ 2.66
1953	8,750,000	+ 1,202,600	+ 15.9	+ 3.2
1955/56	10,262,536	1,512,536	+ 18	+ 9

Source: For 1882 and 1903 Report by H.M. Agent and Consul-General on Egypt and the Sudan in 1903, for the remaining years, Sudan Almanac, Khartoum, for 1956 the 1955/56 Population Census.

1882 figures were biased upwards. This is supported by the fact that the 1882 figures were estimated by prisoners-of-war without using any base for estimation. Even the estimates based on tax lists are not likely to be at all reliable. This is because normally sheikhs and omdas had an interest in giving the authorities the minimum number of their people in order to avoid taxes. This is specially true in a country where there is no easy way to make counter-checks.

To show the unreliability of these early estimates, it is only necessary to look at the pre-census adminis-

trative estimates. In 1953 the estimated total population in the Sudan Almanac was 8,750,000 compared with 10,263,000 arrived at by the census in 1956. Therefore in the most recent years before the census, when information about the country and its people should have been far better than ever before, the difference between the estimate and the census was 18%, an increase which could not realistically have been attained in two years* from 1953 to 1955.

The figures of population distribution by province in 1948 were not comparable with those of 1955/56 census. In the absence of large-scale migration within the provinces during this period this also shows the unreliability of those figures.

4.2.2. Population Growth between 1955/56 and 1973:

Two population censuses have been carried out in the Sudan, the first in 1955/56 and the second in 1973. In 1955/56 the country was divided into nine provinces, each province being sub-divided into districts. For the census purpose some districts were further sub-divided into census areas, the precise number depending on guessed population.

The 1973 census was based on the nine old adminis-

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* McLoughlin .... op.cit. P.54

trative provinces (as defined in 1955/56) except Kassala Province which has been sub-divided into two provinces since 1972 (Kassala and Red Sea). Although the country has been divided into 18 provinces since 1973, the census results are based on 10 provinces with their sub-divisions.

Table 4.2 depicts the population of Sudan and population densities of the nine provinces. Kassala includes the population of Red Sea for the reason of comparison. It can be noticed that the population growth in the intercensus period was only 2.2 per cent per annum composed of a growth rate of 2.7 per cent in the Northern provinces and 0.5 per cent in the South. In fact, the national growth rate revealed by the 1973 census was much lower than the 2.8 per cent assumed by the joint study by the United Nations* and the government of the Sudan in 1964.

It can be noticed that the population of the first three provinces (Khartoum, Blue Nile and Kassala) has significantly increased in the intercensus period. Apparently the population density for Khartoum Province, which includes the three biggest towns in Sudan, more than doubled. Blue Nile Province, which contains the

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* Population Growth and Manpower in the Sudan (New York, United Nations Department of Economic and Social Affairs) Population Studies, No. 37 1964.

Table 4.2 Population, Population Growth and Densities of Sudan by Province in 1955/56 and 1973

Province	Area Sq.Km.	Population 1955/56	Population 1973	Annual Growth Rate	Population Density	
					1955/56	1973
Khartoum	20971	504,923	1,145,921	4.7	24.0	52.2
Blue Nile	142139	2,069,646	3,740,405	3.2	14.6	25.4
Kassala	340658	941,039	1,547,475	2.8	2.8	4.4
Northern	477078	873,059	957,671	0.5	4.6	5.5
Darfur	496373	1,328,765	2,139,615	2.7	2.7	4.2
Kordofan	380549	1,761,968	2,202,345	1.3	1.8	1.9
All North		7,479,400	11,733,432	2.7		
Equatoria	903503	903,503	791,738	-0.7	4.6	6.2
Bahr El Ghazal	991022	991,022	1,396,913	2.0	3.8	3.2
Upper Nile	888611	888,611	836,263	-0.4	4.6	3.6
All South		2,783,136	3,024,914	0.5		
All Sudan	2505825	10,262,536	14,758,346	2.2	4.1	5.6

Source: 1955/56 Population Census and Department of Statistics 1976

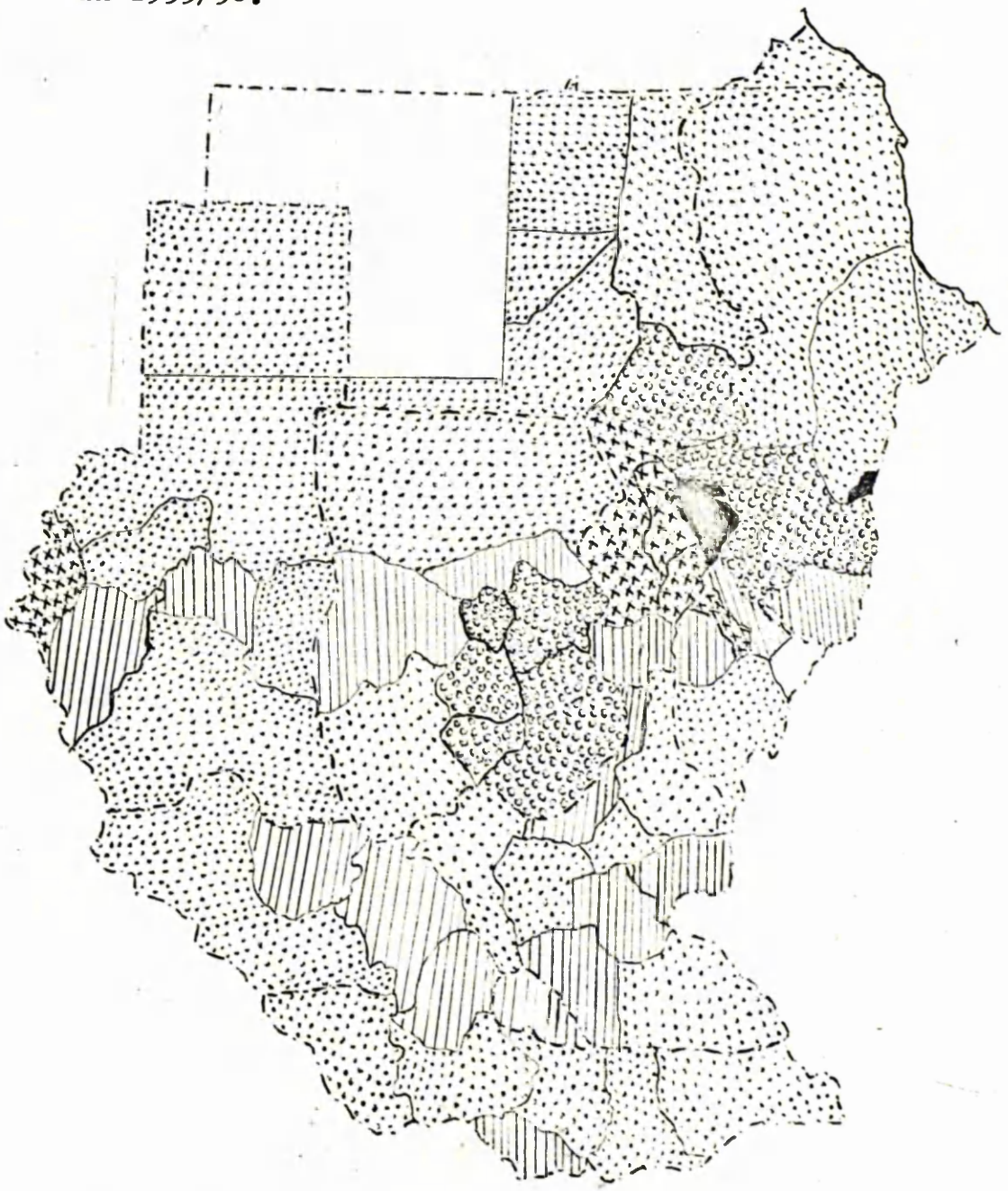
biggest agricultural schemes, occupies the next rank in terms of population growth and densities. The four provinces of Kordofan, Darfur, Northern and Bahr El Ghazal have shown slight increases in population densities. The remaining two provinces (Upper Nile and Equatoria) have exhibited a decline in population densities implying negative population growth rates.

In terms of population changes the provinces are characterized by high, low and negative rates. Such a classification depends on mere comparison of the two census results at their face value. It may be artificial if the two sets of data are not comparable in terms of the coverage of the population, or it may be real depending on the degree of population mobility and/or other factors which affect population dynamics (e.g. fertility and mortality).

The three provinces which are characterized by a relatively high rate of population growth are migrant receiving areas, while the provinces characterized by the low population growth rates are considered to be sending areas. The remaining three Southern provinces are claimed to be highly affected by the instabilities and casualties due to national conflict in the inter-census period. Two of the three Southern provinces had in fact negative rates of growth of their population and the third is little less than the national average.

Figures 1 and 2 show population concentration and dispersion in 1955/56 and 1973 respectively. In general Sudan reflects a very low population density in 1955/56 with a very slight increase in 1973. If the two censuses are comparable, Sudan, with its wide and diverse natural resources, has not yet maintained

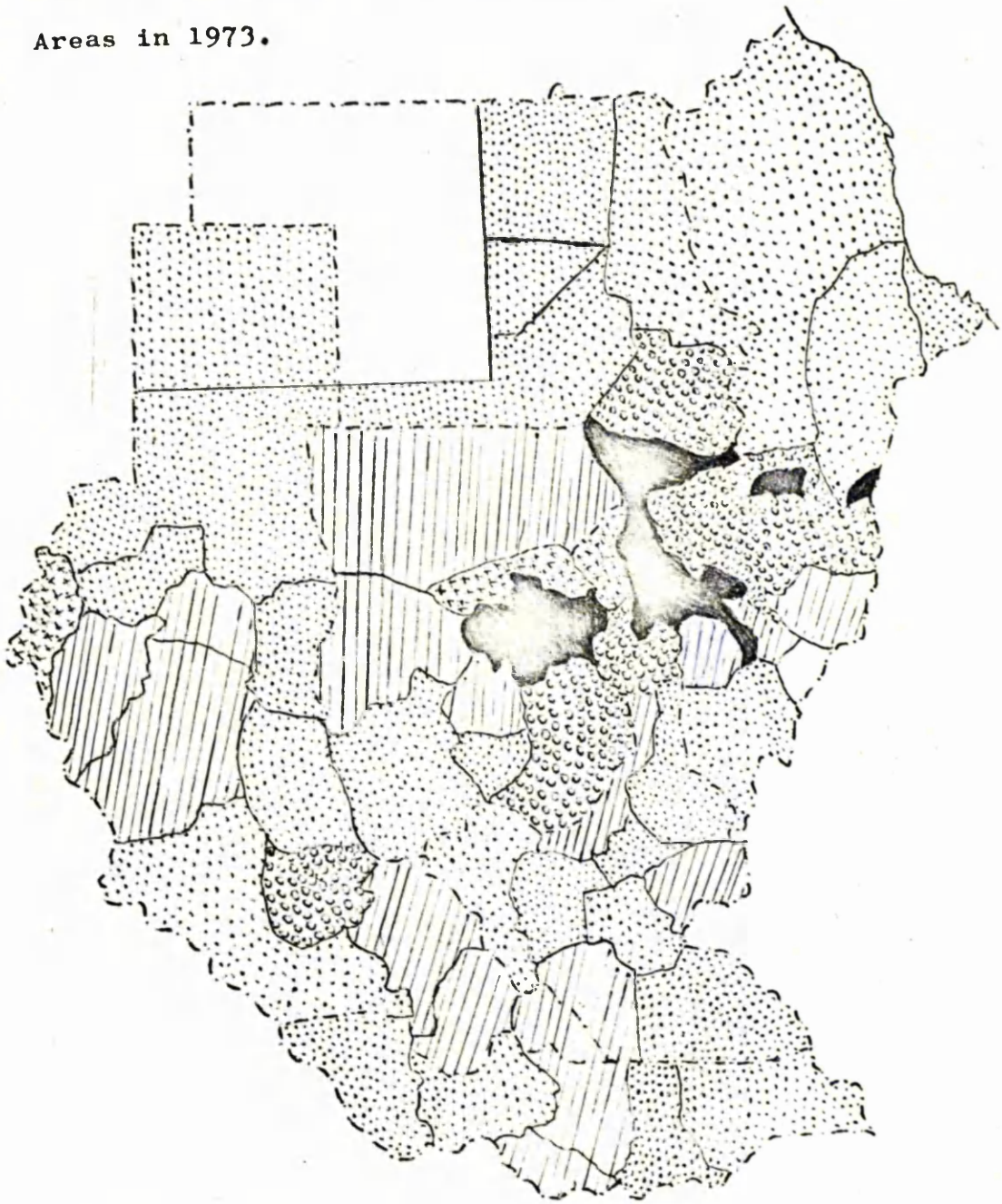
Fig. 4.1 Average Population Density of Census Areas in 1955/56.



Inhabitants per square kilometre.

1 0 - 4
2 5 - 10
3 11 - 16
4 17 - 30
5 More than 31

Fig. 4.2 Average Population Density of Census Areas in 1973.



Inhabitants per Square Kilometre

1	0 - 4
2	5 - 10
3	11 - 16
4	17 - 30
5	More than 31

a balanced set-up between human and natural resources. As can be seen from figure 2 it is in fact the middle belt and the Savana areas of the country which show higher densities of population. Little of the country's total area is unused. Such unused land is to be found mainly in the north western desert. Much of the variation in densities may be ascribed to the extreme aridity of large areas in the North and to the presence of the Nile as a basis for intensified agriculture in the region to the south of Khartoum complex. The lower densities in the South do not reflect an absence but rather an over-abundance of water. With heavy rainfall during the greater part of the year, extensive areas in the South are permanent swamp and tropical jungle. The problems of drainage may be more easily solved when a greater density of settlement has been attained. The region of comparitively high population density can be seen in the central clay plain (approximately between the latitudes of 12^{o} to 16^{o} north) and, particularly, in the Eastern half of that belt where the two branches of the Nile meet. Here towns and villages have developed along the rivers and smaller streams, and other settlements along the connecting roads and railways.

4.3. Population Pressure on Land

The above criterion which relates the country's total population to total area is not a meaningful measure of

population pressure on land, as there are many parts of the country uninhabited as well as urban areas with high concentrations of people. A more useful indicator of population pressure on land is obtained by relating the agricultural population to the area of land available for agriculture according to various definitions. Several such indicators are presented in the table overleaf for the Sudan and some other African countries, as well as averages for some other continents.

Although comparisons are hampered by differences in times of data collection, types of agriculture and the potential productive capacity of the different categories of land, the figures are useful in clarifying the relative position of the Sudan. With regard to the ratio of agricultural population to total land area and to the combined areas of agricultural and forested land the position of the Sudan is quite favourable. However, it looks less favourable when agricultural population is related to the area of agricultural land only or to the arable land and land under crops. Here the ratio of the Sudan is higher than the average for the whole Africa.

However, what looks more important for the purpose of manpower utilization in the country is the way in which population is distributed within the country's regions. Unfortunately, data such as those shown in

Table 4.3 Ratio of Population Dependent on Agriculture to Land Areas defined by various criteria, in selected Continents and Countries of Africa about 1950

Continent or Country	Year	% of popul. dependent on agric-ulture	Persons dependent on agric. per sq. km. of land			
			Total Land Area	Agricul-tural and forested area	Agricul-tural area only	Arable land and land under crops only
Continent:						
Asia	1950	64	30	52	92	150
Europe	1950	33	26	35	56	84
Africa	1950	66	4.4	8.6	16	56
South America	1950	59	3.8	5.2	18	90
Country:						
Ghana	1952	68	13	16	-	56
United Arab Rep.	1947	63	12	420	420	420
Algeria	1948	71	2.5	12	13	85
Sudan	1956	87	3.6	7.3	29	130

Source: FAO Production Yearbook 1961 Table 1,4 and 5

table 4.3 are not available for parts of the country. In the absence of any reliable information about the subject, attempts were made to calculate total area under crops in each province. Since most of the agricultural land in the Sudan is not yet cadastrally surveyed, the crop acreage

figures remain uncertain due to subjective estimation.

Out of the two hundred million feddans of agricultural area, 8.5 per cent was under crops in 1973. The shares of irrigated, flooded and rainfed agriculture were 16.7 per cent, 1.2 per cent and 82.1 per cent respectively. More than 80 per cent of total area cropped was in Blue Nile, Kassala and Kordofan Provinces. Kordofan had the greatest share with 37 per cent of total land under crops, while Blue Nile and Kassala had 28 per cent and 17 per cent respectively. As for the share of total population, Blue Nile Province had nearly one quarter of the country's population while Kordofan and Kassala had 15 per cent and 10 per cent respectively in 1973. The three southern provinces, with more than 20 per cent of the country's population, had less than 10 per cent of total land under crop.

Although the ratio of population to land under crop is higher in Blue Nile than in Kordofan Province, we find the demand for labour higher in the former, and every year many people travel long distances from Kordofan and Darfur to participate in seasonal agricultural jobs in Blue Nile and Kassala Provinces. This means that the area of land alone is not enough to determine the demand for labour. Other factors such as the mode of irrigation, the pattern of cropping, the crops cultivated and the

intensification of these crops are equally important. Provided that water is available a piece of land can be cultivated more than once every year. The demand for labour differs between different crops for different operations or for the same operation using different techniques of production. It is these factors which affect labour requirements in agriculture and which we try to discuss in chapter six.

4.4. Fertility Levels and Trends

According to the 1956 census the crude birth rate was 52 births per 1,000 and the crude death rate was only 19. This results in a growth rate of 3.3 per annum. This figure is believed to be an overestimate for the following reasons:

The first reason could be the questions asked and the method of enumeration used. In the census, data on the number of births and deaths during the past 12 months prior to the census were recorded. Because of ignorance and memory lapses, births outside this period might have been included, inflating the birth rate, but at the same time not all deaths within this period would be included, thus deflating the death rate. If this had been so, it would no doubt result in serious overestimation of the natural rate of growth.

The second reason is the recent evidence* which suggests that the fertility of nomads is extremely low - the birth rate is found to be about 30 per 1,000. This low fertility which was not taken into account by the census can be attributed to the poor nutritional standards, the bad health conditions and absence of public health and medical services. Thirdly, a review** by the United Nations and Department of Statistics in the Sudan, of the 1955/56 census arrived at the conclusion that the death rate had been underestimated to some extent, and suggested that the rate of natural increase is likely to be between 2.5 per cent and 3 per cent per annum. For practical purposes, 2.8 per cent has been accepted as the rate of natural growth in 1964.

However, this estimated rate of growth was found to be still overestimated, as the 1973 population census revealed a growth rate of less than 2.5 per cent. The urban population is growing at a rate three times higher than the national average. The rate of population growth, though lower in the Sudan than in many other developing countries, is still so high that a decline in fertility

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* Henin, R.A. "Fertility differentials in the Sudan with reference to settled and nomadic population." Unpublished Ph.D thesis. University of London, 1964.

** Population, Growth and Manpower in the Sudan .... op.cit. P.19.

rate seems to be advisable for the country's development. One might argue against this proposition in the case of a country like the Sudan which experiences shortages of labour supply in the primary sector, as can be seen from chapter six. But the fact is that a decline in fertility rates would have no substantial influence on the size of the labour force in the country for at least fifteen years. It would of course have an immediate impact on the number of those outside the labour force. This will be further discussed in the coming section.

4.5. Population Composition and Distribution

4.5.1. Age and Sex Structure of the Population:

As mentioned above, changes in fertility rates would in the short run affect the number of consumers rather than producers. As a result of high fertility rates experienced in the past, and the low mortality rates due to improvements in health conditions the age distribution of the population of the Sudan is skewed in the direction of a high dependency burden. This can be easily seen from the population pyramids which reflect the percentage distribution of population by age and sex groups in 1973. The general conclusion that can be drawn is that the population of the Sudan is very young. It can be seen that about 47 per cent of the population are under 15 years of age as against 45 per cent in the 1955/56 census. On the other hand only

4.8 per cent were sixty years of age or older, which implies that the country's mortality rates are high and life expectancy is very low. In fact, the expectation of life at birth in the Sudan is only 45 years compared with 74 years in West Europe. In 1973, 8.4 per cent of population were in 15-19 age group, 7 per cent in 20-24, 8.5 per cent in 25-29 while the percentage distribution of population in higher age groups varied gradually from 6.5 per cent in 35-39 age group, 3.4 per cent in 45-49, to only 1.5 per cent in 55-59 age group.

From what has been mentioned above it is evident that the proportion of children in the population is large. These are the people who in fact need more immediate investment concentrated on health, education, housing and food. A reduction of fertility rates would have the direct effect of decreasing the dependency burden. With a lower dependency burden, income per head would rise. If the rise in average income were devoted to increased consumption there would be a general rise in levels of living. This might lead to better health and educational facilities, leading in turn to improvements of labour input and efficiency.

As can be seen from the provisional estimates of the 1973 census, 49.5 per cent of the population are female. The population pyramids show a substantial difference in the age structure of male and female

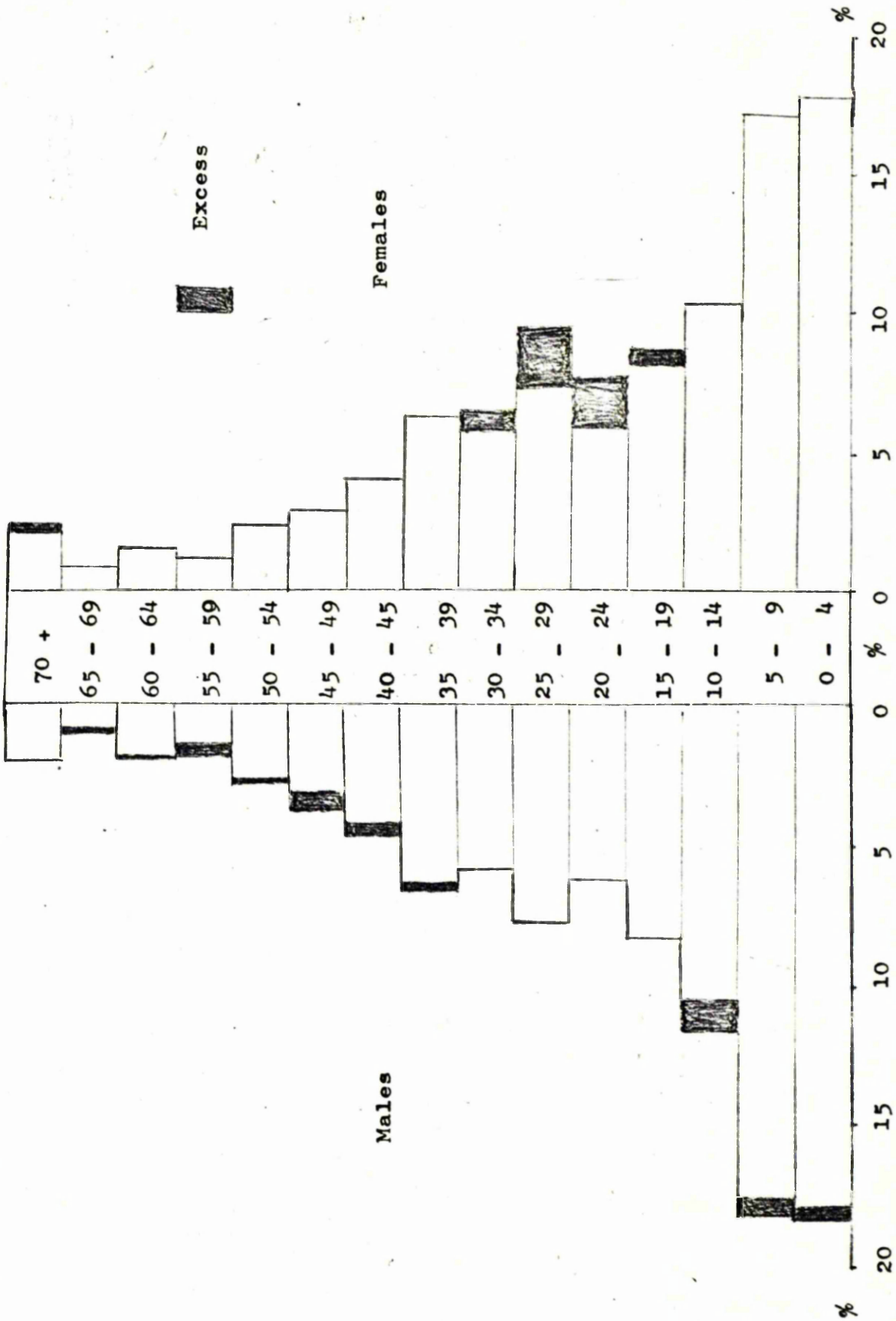


Fig. 4.3 Population Pyramids 1973

population. For example the percentage of those below 15 years of age was 47.8 for males against 45.3 for females. The percentages of females far exceed those of males in the age groups 15-19 and 30-34, while males exceed females in all other age groups except the 70-and-over age group. This predominance of females between 15 and 34 may be explained by one of the following reasons:

1. There might be a mis-representation of males within this age in the census.
2. It is likely that many of the young males were outside the Sudan in 1973 seeking employment. Within these age groups it is less common to find female migrants leaving the country.

4.5.2. Urban/Rural Population:

According to the 1955/56 census data, only 8.3 per cent of the total population of the country was living in urban areas. Urban areas were classified as localities of administrative and/or commercial importance or with populations of 5,000 or more. The remaining localities were considered rural. The six Northern provinces were relatively more urbanised than the three Southern provinces in 1955/56. At that time 94 per cent of the country's urban population were living in the Northern provinces.

According to the 1964/66 Household Survey, the urban

population was 1,455,000 in the North. When we add to this figure the 6 per cent given by the 1955/56 census for the urban population in the South, the total urban population for the country as a whole was around 1,545,000 persons in 1966. According to this estimate, the rate of annual increase in urban population was a little less than 6 per cent.

At the time of the first national census, Sudan was much less urbanized than most countries in Africa. By that time less than 5 per cent of the total population was in centres having more than 20,000 inhabitants. More than half of the population in such centres was concentrated in the urban region of Greater Khartoum. Table 4.4 gives a comparison between Sudan and some other African countries.

As can be seen from the table and considering variations in statistical dates, Sudan was not only the least urbanized in North Africa but one of the least in the whole Africa. The Sudan's low degree of urbanization might be attributed to the relative abundance of land for agriculture. This low degree of urbanization was in accord with the finding of the census that 85 per cent of the economically active population were engaged in primary activities.

However, since independence in 1956, the process of urbanization has speeded up considerably. There

Table 4.4 Percentages of Urban Population, Variously Defined, in Selected African Countries at Specified Dates

Country	Date	Per Cent of Population Living In		
		Urban areas of 20,000 +	Largest City	All 'Urban' as defined for national statistics
North Africa				
Egypt	1947	29.1	11.0	30.1
Morocco	1950	24.0	8.3	19.3
Tunisia	1946	18.2	11.3	19.9
Libya	1954	18.3	11.9	22.7
Algeria	1948	14.1	3.1	23.6
Sudan	1955/56	4.5	2.4	8.3
Other Parts of Africa				
Nigeria	1952/53	11.4	1.5	17.5
Senegal	1956	10.0	9.9	22.9
Ivory Coast	1956	6.8	5.1	11.1
Ghana	1948	5.0	3.3	14.3
Kenya	1948	3.8	2.2	5.0
Guinea	1955	5.1	1.1	6.5
Uganda	1948	0.4	0.4	0.8
South Africa	1951	30.7	5.0	42.6

Source: Economic Commission for Africa, Economic Bulletin for Africa - Vol. II No. 2, June 1962 - P.63.

are various reasons for this, the most important of which are probably the widening gap between nominal urban and rural incomes and the emergence of new employment opportunities in government jobs. This was strengthened by Sudanization of the civil service and of many other jobs in different sectors.

Urbanization has been rapid, in particular in the three Southern provinces which started from a very low base. Table 4.5 shows the extent of urbanization in the country in the intercensus period.

Table 4.5 Urban and Rural Population, 1955/56 and 1973

	1955/56	1973	Annual Growth Rate
Urban North	690,396	2,213,014	7.1
" South	46,737	274,716	10.9
Rural North	6,789,004	9,520,417	2.0
" South	2,736,399	2,750,014	0.03
All Urban	737,133	2,487,730	7.4
All Rural	9,525,403	12,270,432	1.5

Source: 1955/56 Population Census and Department of Statistics, 1976.

While total population between the two censuses was growing at around 2.2 per cent per annum, the urban population was growing at 7.4 per cent. The three Southern provinces, though they witnessed the lowest

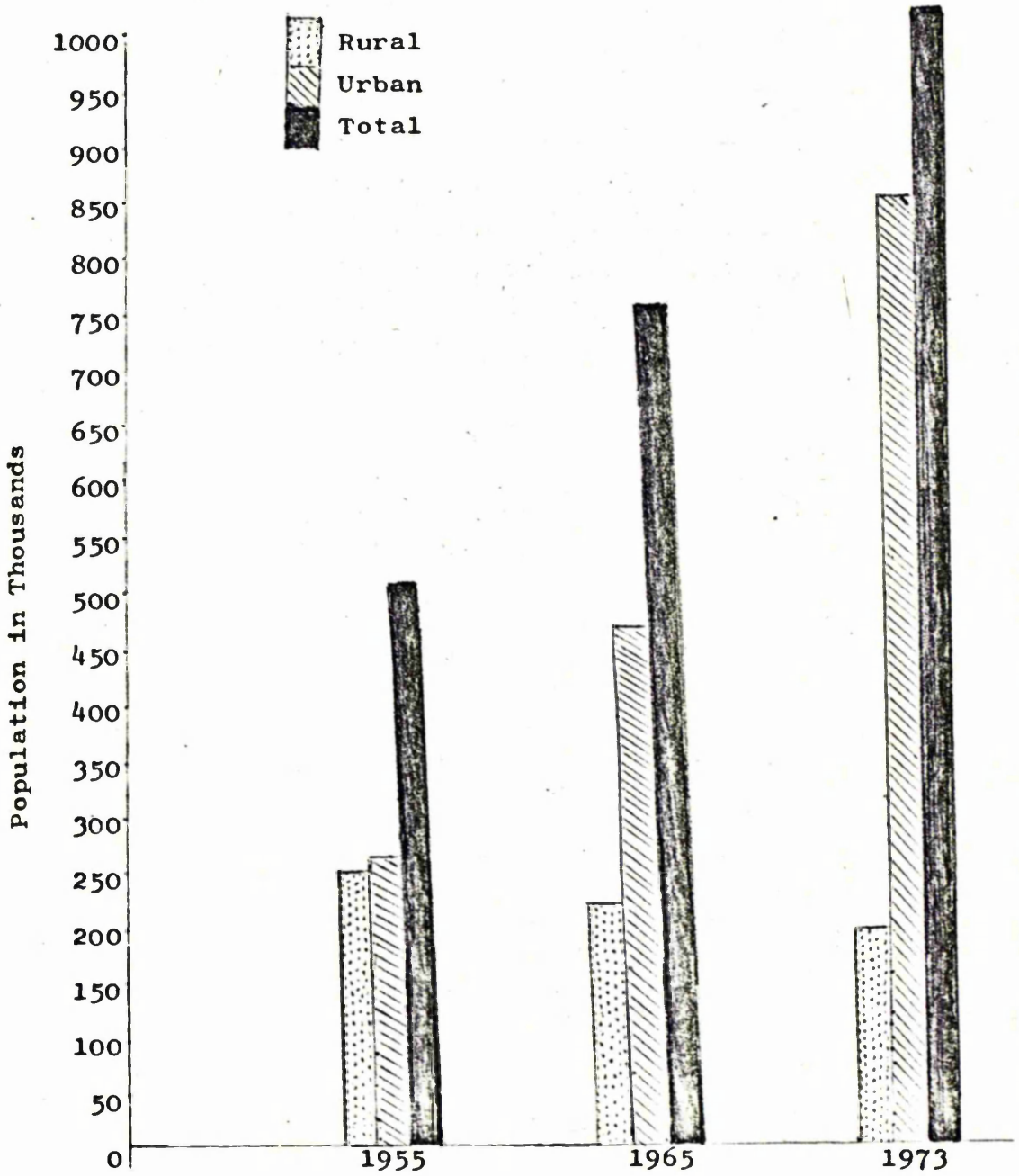
rate of population growth, had experienced the highest rate of urban growth. In rural areas population was growing at 2 per cent per annum in the North and 0.03 per cent in the South. The resultant figure for all rural areas was 1.5 per cent.

The urban population increased from 884,137 persons in 1955/56 to 3,290,000 in 1976. The percentage of urban population out of total population increased from 8.3 per cent to 20.4 per cent in the same period. Khartoum with 30 per cent of the total urban population of the country is the most urbanized province, followed by Blue Nile and Kassala Provinces. 70 per cent of Khartoum Province's population live in urban areas, while 34 per cent in Red Sea, 21 per cent in Kassala, 18 per cent in Northern, 13.5 per cent in Darfur and 6.1 per cent in Blue Nile Province live in urban areas. As can be seen from figure 4.4, urban population in Khartoum Province appears to have increased from about a quarter of a million in 1955/56 to more than three-quarters of a million in 1973, that is it has multiplied three fold.

4.5.3. Nomadic Population:

In 1955/56 localities with less than 5,000 persons were considered as rural and were further classified into localities inhabited by rural settled and rural

Fig. 4.4 Khartoum Province Population Growth



Source: For 1955 the 1955/56 Cenus, for 1965, the 1964/66 Household Survey, for 1973, the Population Cenaus of 1973.

nomadic population. A nomadic person was one who owed allegiance to a nomadic sheikh. According to this definition the nomads accounted for 1,405,951 persons or 15% of the country's total population in 1955/56. However, this was considered an underestimation of nomadic people resulting from the use of unsatisfactory definitions by the census authorities. Applying the same definition the 1973 census estimated 1.6 million nomads.

The nomads own 92 per cent of the country's livestock. Their role in the national economy can be seen from the contribution of the livestock sector to the Gross Domestic Product (GDP). Between 1966 and 1971 it accounted on average for about 9.91 per cent of the total gross domestic product and for about 25.3 per cent of the agricultural domestic product. The livestock sector is also an important source of revenue to the government. In spite of tax evasion it contributed more than a million pounds in the form of animal taxes every year. Moreover, it contributes about 7 per cent of the country's total exports which places it fourth in importance. More than 60 per cent of the total land and 25-40 per cent of the country's labour force are involved in livestock production. If compared with these vast resources the contribution of livestock is lower than expected. The government is encouraging the nomads to settle in order to provide them with

health and educational facilities. According to data based on 1973 census estimates the percentage of nomads to total population was 10.2 per cent, or about half the figure for urban population.

As the nomads are not likely to contribute in seasonal agricultural operations they are excluded from the agricultural labourforce estimation in chapter six. However, it is believed that their settlement as cultivators in future will increase the supply of agricultural labour.

4.6. Extent of Internal Migration

Both the national censuses conducted in the Sudan provided some information about internal migration by comparing place of birth of persons enumerated and place of residence. However, such data underestimate the extent of migration by not counting those who migrated more than once and those who migrated and returned to their place of birth. According to the first census 55% of the inhabitants of the country, or 5,405,000 persons, were resident outside their place of birth at the time of the census. This high mobility looks surprising when we consider the large size of the country and its poor transport system.

However, most of this migration was characterized by short-distance movement as only 400,009 or 7.3 per

cent of the migration, was inter-provincial migration. This last figure increased to 1.2 million in 1973 census. Hence inter-provincial migration tripled between the two censuses. This increase in inter-provincial migration may be considered partly a result of relative improvements in transport and communication facilities. Also, people are becoming more and more clearly aware of the differences between individual, social and economic opportunities between regions. With the growing monetisation of the economy, these disparities are increasingly seen and measured in monetary terms.

According to the 1973 census Khartoum Province had the highest rate of immigration, followed by Blue Nile and Kassala Provinces. Khartoum alone had 30.6 per cent of migrants, while Blue Nile and Kassala had 29.6 per cent and 10.7 per cent respectively. Kordofan, Northern and Darfur Provinces are the areas sending most migrants, with 27 per cent, 22 per cent and 20 per cent respectively of total migration. This means that inter-regional migration is roughly from North-west region to the North-east direction. This influx of population from North-west region to the North-east can be explained by the concentration of modern agricultural schemes along the Nile, Tokar and Gash delta and the central clay planes, and the mechanized rainfed agriculture where good soil and relatively sure rains are available for growing dura, cotton, groundnuts

and sesame. On the other hand Khartoum Province with its urban nature, containing the capital and biggest industrial and commercial centre, attracts increasing numbers of migrants from other provinces.* The Northern Province is known to be an area from which many people migrate to other countries. Unfortunately data to explain intra-provincial migration is not available from the 1973 census. However, available information from the first census can show the extent of this migration, as can be seen from the table overleaf.

As can be seen from the table, intra-provincial migration was higher in the three Southern provinces than in the rest of the country. While the average for the whole country was 50 per cent the average for the South alone was 70.9 per cent. On the other hand intra-provincial migration was lowest in the more urbanized provinces of Kassala and Khartoum, though in the former a large proportion of the rural population was found to be nomadic. As far as inter-provincial migration is concerned the Southern provinces experienced the lowest rates. This might be explained by the remoteness of this area from other regions and the relatively bad transport facilities.

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* ILO, Report to the Government of the Republic of the Sudan on the development and implication of a national employment policy. (Geneva, 1973; mimeographed), PP. 70 - 71.

Table 4.6 Persons Enumerated in Each Province, Born in the Locality of Residence, Elsewhere in the Same Province, or in other Provinces of the Sudan according to the 1955/56 Census Returns

Region and Province of Residence	Total Born in the Sudan (000's)	Born in Locality of Residence (000's)	%	Born elsewhere in same province (000's)	%	Born in other province (000's)	%
Sudan	10,015	4,607	460	5,010	50.0	400	4.0
North East	3,355	1,739	51.8	1,324	39.5	293	8.7
Blue Nile	1,992	879	43.9	995	49.9	123	6.2
Kassala	878	596	67.9	212	24.1	71	8.1
Khartoum	485	269	55.5	117	24.1	99	20.4
North West	3,889	2,091	53.8	1,722	44.3	77	2.0
Darfur	1,283	695	54.2	566	44.1	22	1.7
Kordofan	1,740	978	56.2	722	41.5	41	2.4
Northern	866	418	48.3	434	50.1	14	1.6
South	2,770	776	28.0	1,964	70.9	30	1.1
Bahr El Ghazal	991	152	15.3	829	83.7	10	1.0
Equatoria	895	334	37.3	551	61.6	10	1.1
Upper Nile	884	290	32.8	584	66.1	10	1.1

Source: Population Growth and Manpower in the Sudan. Op.cit. Table 16, P.44

Unfortunately, data were not available for rural-urban migration within each province from the 1973 census. But the census showed that the rate of migration between provinces to urban areas was 25.8

per cent and that to the rural areas was 5.6 per cent of rural population. The pattern of internal migration has been such that most of the increase has been concentrated in Khartoum, the former Blue Nile and Kassala Provinces. As far as seasonal migration of labour every year from the areas of traditional agriculture to modern agriculture is concerned, further analysis will be made in chapters eight and nine.

4.7. Conclusion

In examining the structure of the national population, emphasis has been given to the study of population pressure on land in the belief that this will help in understanding the manpower situation in the country.

In the Sudan, the problem of population does not take the form of insufficiency of land to support the present or future population. The country as a whole has enormous possibilities for expansion of agriculture. This may shelter the country for some years from urban unemployment. This does not mean, however, that the Sudan is free from other kinds of population problems. One aspect of these problems is that of population distribution. The existing patterns of population and manpower distribution do not fit the requirements of agricultural development. It is therefore, important so far as possible to take the distribution of manpower resources within the country into account in planning programmes of development.

CHAPTER 5

The Labour Force

5.1 Introduction

In the previous chapter, numerous processes which can be analysed formally in relating population trends to labour force were discussed. Although the population pressure on land gives some information about the man-power situation in agriculture, a much improved under-standing of the demand for labour in agriculture is needed. This will enable us to examine in the next chapter the hypothesis of labour shortages in modern agriculture.

In this chapter, the main purpose is to define and classify the labourforce. We are interested in the definition and measurement of the labourforce for many reasons. In the first place, it will give the size of the agricultural labourforce. Secondly, the magnitude of many employment problems is determined by the size and definition of the working population. Thirdly, the distribution of the employed and the unemployed into age groups and between regions of the country will throw some light on the characteristics of these groups. In section one, the size of the labourforce is determined.

In two it is classified into industry, occupation and employment status. In the last section its sectoral development is discussed.

5.2 Definition, Size and Demographic Structure of the Economically Active Population

Generally, there are two basic types of standards in defining what is, and what is not economic activity.

(a) The first is to ask each person what his usual occupation or gainful work is without asking exactly when the work is done. According to this approach, those who report some useful occupation are considered "economically active" and are classified as "gainful workers".

(b) The second type of standard defines the economically active population as "labour force". This represents the number of people actually at work (or seeking work) during some particular short period, usually a week.

So the labour force refers to the potential supply of labour in the 13-64 age group, which is usually accepted as the productive age group by the United Nations. If we exclude students, housewives, disabled, sick persons and prisoners from the total population within this age group, the remaining population (i.e. persons having a

job, persons having a job but not working, persons seeking work and persons who are not seeking work because they think there is no work available) constitute the labour force.

Table 5.1 Economically Active Population by Sex

Source	Lower Age Limit	Sex	Activity Rate*	
			Crude	Refined
Population Census 1955/56	5 years	Male Female Total	66.4 7.0 37.0	82.5 8.8 46.2
Population and Housing Survey 1964-66	8 years	Male Female Total	52.5 5.3 30.1	71.4 7.4 41.2
The sample census of Agriculture 1964-65	6 years	Male Female Total	35.2 42.9 51.2	74.4 53.7 64.2
Household Sample Survey 1967-69	Not stated	Male Female Total	49.3 9.6 29.3	
Population Census 1973	15 years	Male Female Total	47.0 11.8 29.5	88.9 21.2 64.6

The above table shows the relative size of the labour force in terms of percentage of labour force to population

* The Crude Activity Rate is determined by dividing the labour force by total population whereas the Refined Activity Rate is determined by dividing the labour force by people of working age.

for each sex from different sources. Since these sources differ widely in their concept, definition and coverage, it is important to interpret the results with caution. As shown in the table, all sources except the agricultural survey gave low economic activity rates for females. Probably the high female activity rates reported in the agricultural survey are due to the inclusion of "housewives activities" as economic activities in the survey; in addition the survey excluded the urban areas in the country, which were expected to have a lower female participation rate.

Due to the difficulties of comparability of data from these sources it might be more useful to restrict ourselves to the two national censuses of population. According to the 1955/56 census the number of persons found to be engaged in economic activities was 3.8 million, or 37 per cent of the total population. In addition there were another 1,116,000 persons whose main activity was not economic (mainly students and household duties) but who had subsidiary economic occupations. The addition of these to the economically active raises the proportion from 37 per cent to 48 per cent. The percentage distribution of the economically active population by sex and age in 1955/56 is shown in table 5.2. overleaf.

Table 5.2 The Age/Sex Structure of the Economically Active Population in 1955/56

	Total Economically Active	Activity as Main Occupation	Activity as Subsidiary Occupation
Total (5 years & over)	100	100	100
Adults past Puberty:			
Men	56.0	72.4	0.3
Women	24.7	7.4	83.4
Children (5 years to Puberty)			
Boys	14.4	18.2	1.3
Girls	4.9	1.9	15.1

Source: The 1955/56 Census, Final Report Vol. III

At the time of the census the labour force participation rate was 52 per cent for boys between age 5 and puberty, and 96.5 per cent for adult men. For females it was 7 per cent for girls and 9.4 per cent for adult women. However, when we consider subsidiary productive occupations, the participation rate rose substantially for both girls and adult women to 23 per cent and 41 per cent respectively, while it remained constant for adult men and rose slightly for boys to 53.4 per cent.

Appendix 5.1 shows the age-specific activity rates and refinded activity rates for the country and its

provinces in 1973. The female activity rates were not only lower than those of males in all age groups, but also differed considerably between the provinces. Darfur had the highest participation rate for females, followed by Kordofan and the three Southern provinces respectively. The lowest female participation rate was reported in the Northern Province.

For the country as a whole the male activity rates were much higher than those of females. This is partly attributable to the nature of reporting the activity statistics. In some situations females are unwilling to report themselves as working and in others they report themselves as housewives.* In Sudanese society as in other less developed countries the concept of "housewife" is a vague one. Housewives are partially involved in economic activities and partially indulged in their homes. The "housework" itself is far difficult in the Sudan compared to developed countries where housewives have access to piped water, central heating, electricity and numerous household machines, and where they can buy all necessary food. In the Sudan women more frequently carry water, collect fuel, grind grain into flour, etc., and these crucial activities are not

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* Berta Fahmi Said "Labour Force in the Sudan and its projection up to the year 2000." Unpublished M.Sc. thesis (in Arabic) Dept. of Labour - Khartoum 1976.

counted as economic activities. Only if the housewife has a job outside the home or participates regularly and to a large extent in farm work, is she considered as economically active.* The limitation of the 1973 census enumeration is that it did not include in the questionnaire an item for 'subsidiary occupation' to account for 'housewives' activities. Moreover, in some areas of the Sudan, especially in the Northern and Middle areas, females are frequently reluctant to participate in field work due to social stigma.

5.3 Classification of the Labour Force

In the first part of this chapter attempts were made to determine the size of the labour force in the Sudan from different sources. However, the size alone might not be useful enough to explain employment problems of the Sudan in general and in the agricultural sector in particular. In this part of the chapter we try to see how labour is distributed between different occupations and different industries. Such classifications of the country's working force will help us to determine later the supply of labour in agriculture in the country at large and in different provinces. A comparison between available labour and labour required in agriculture in the next chapter will enable us to test how justified

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* It is common knowledge that a man who marries his cook reduces national income and employment at a stroke, because her work, hitherto regarded by society as productive, will now become "mere" housework.

is the hypothesis that the country will face problems of labour shortages in agriculture when the new projects in the government plan start production.

The economic activities reported in the first population census were classified under nineteen occupational groups. It was not practicable to maintain convertibility from this classification to internationally recommended classifications of economic activities. At the stage of the pilot census in 1953 it was found that none of the international lists of occupations was suitable to the circumstances of the Sudan.* The classification adopted for the Sudan was primarily one by broad socio-economic categories.

In the 1973 census a more modern and internationally recommended classification of economic activities was introduced. Three separate criteria were employed, namely industry (or branch of activity), personal occupation, and status (as employer, employee, etc.). Under the first criterion, manpower is classified according to the type of production mainly engaged in by the enterprise or establishment in which each individual is employed; evidently some types of occupation are carried on in establishments engaging in many

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* First population census of the Sudan 1955/56, Supplement to Interim Reports. Khartoum 1956, P.16

different types of production. By the second criterion, distinction is made in the type of work done by the individuals, irrespective of the type of activity of the establishment or enterprise. Finally workers are classified according to whether they are employers, employees, self employed, unpaid family workers, etc.

5.3.1. Industrial Classification of Labour Force:

Such a classification is useful since it will help in understanding how the country's manpower is distributed between different industries. For example, most of the underemployed are expected to be engaged in agriculture and it is the size of this sector and the total manpower engaged here which will show how serious underemployment is in the country. Moreover, the labour force engaged in each sector is distributed between the provinces. This will later be compared with the land under crop in each province and the crops produced, to determine the demand for and supply of labour in agriculture.

Tables 1 to 5 in Appendix 5.2 classify the labour force according to industry in 1973. According to this classification, 71.8 per cent of the economically active population were engaged in agriculture compared to 86.9 per cent in the 1955/56 census. The drop in the percentage of labour engaged in agriculture between the two censuses was mainly transferred to the services sector.

However, in spite of this drop in percentage, the absolute number increased in agriculture. In 1973 there were wide variations between provinces in the relative sizes of the various sectors. Khartoum with 8 per cent of the country's labour force had only 2.2 per cent of the agricultural workforce, but 33.9 per cent of labour in manufacturing and 25 per cent of construction, wholesale and retail trade and social services. Blue Nile and Kassala rank second and third to Khartoum in their share of the country's non-agricultural labour force. Since only a quarter of the country's labour force were reported to be wage earners and these were mainly in the non-agricultural sectors it follows that the majority of wage earners were in these three provinces. This has an income distribution effect since the wage earners in the country seem to be better off than the own account workers. This will be seen when we classify labour according to employment status.

Blue Nile and Kassala Provinces with 32 per cent of the country's total labour force and with around 70 per cent of their labour engaged in agriculture, constituted only 32 per cent of the country's agricultural labour force. In 1973 these two provinces had 45 per cent of total land under crops, 89 per cent of the area under cotton, 62 per cent of the area under

dura, 94 per cent of that under wheat, 40 per cent of that under sesame and more than 20 per cent of that under groundnuts. As will be shown later, these two provinces yearly need migrants from other provinces to perform agricultural operations. Kordofan and Darfur, where there was less than 40 per cent of total land under crop, had 42 per cent of those engaged in agriculture in the country but only 10 per cent of those in construction and 20 per cent in manufacturing. The Southern provinces constituted 20 per cent of the country's labour force and a similar percentage of the agricultural labour force. Together they had 6.5 per cent of the labour in manufacture, 15 per cent of that in construction and 22 per cent of that in services. From the point of view of income distribution, the average income in provinces with a high percentage of their labour force in industry is likely to be higher than in those with high percentage in agriculture.

5.3.2. Occupational Classification of Labour Force:

As mentioned before under this classification, workers were asked about their occupations irrespective of the type of activity of their establishments. Accordingly, they were classified into eight major categories as shown in Appendix 5.3 Tables 1 to 5. Such a classification is highly important for employment planners as they compare the existing numbers in

various occupations with the needs of each sector for each category. It is equally important to educational planning, which controls the quality and quantity of the supply of certain categories of manpower according to economic needs.

Part of the differences in income distribution between provinces can be explained by proper classification of manpower according to occupation in each province. This is so because payments differ between different occupations and sometimes between the same occupation in different industries. Moreover, occupational classification of the labour force will help to analyse the recent migratory trends from the Sudan to some Arab countries. It seems the migratory trends are mainly skill-selective. It is important to find out whether the migrating skills are surplus in the economic sense or whether they are needed in the country for economic and social development.

The two categories of "professionals, technical and related workers" and "administrative and managerial workers" comprised less than 2 per cent of the country's labour force and were concentrated in Khartoum and Blue Nile Provinces. These two provinces also had about half of the country's clerical and sales workers. The first four categories in the table were the most highly paid in the country. Their concentration in the three

provinces of Khartoum, Blue Nile and Kassala partly explains income disparities between different regions of the country.

Unfortunately, agricultural workers were classified in the census together with animal husbandry and related workers. The results did not show the actual number of workers engaged in agriculture since they included the nomads. As explained in chapter four the nomads constituted more than 10 per cent of the country's population in 1973 and they formed a much higher percentage of the rural population. Agricultural and animal husbandry workers were concentrated mainly in the provinces of Kordofan and Darfur, with more than 45 per cent of the total. The inclusion of nomads in this category inflated the percentage of Kassala, about 50 per cent of whose rural population were nomads. The concentration of workers not classified by occupation in the South expresses the high rate of unemployment in the South.

5.3.3. Employment Status Classification of the Labour Force:

Labour force classification according to the employment status will directly and quantitatively demonstrate the magnitude of one of the country's employment problems, namely the problem of unemployment.

Moreover, it will show the numbers seeking jobs for the first time. Further classification of the unemployed and first time job seekers into age groups will help in understanding some characteristics of the unemployed. The way in which the unemployed were distributed among different regions might help in the decision to create new job opportunities in the country.

The information about own account workers and the size and distribution of employees is essential to an understanding of income distribution. Tables 1 - 10 Appendix 5.4 contain some recent data relating to the country and its regions. It can be seen that almost two-thirds of the country's labour force were either self-employed or unpaid family workers as cultivators or in household industry. Such a high rate of these categories is a feature of less developed countries where due to lack of jobs in the wage-earning sector, many people have no alternative except to do something on their own account to earn a living. Generally speaking, the majority of these are expected to be underemployed. While they do not necessarily seek work, many of them would accept it if they were offered. The reason why they do not seek work might be due to their inability to spare time for searching, and because they believe that it is difficult to find wage-earning employment. Using the concept of "seeking work"

to find out the size of the unemployed is likely not to reflect the truth in such circumstances and the unemployment will be underestimated. Even to consider them only underemployed by measuring hours worked per day is not enough. The fact is that while many of them are working for long hours and working very hard, their incomes are too low to satisfy the basic human needs.

The wage-earners constituted only one quarter of the country's labour force in 1973, compared to 19.2 per cent of the labour force for all Africa and 33.2 per cent for North Africa in 1960.* Nearly 70 per cent of female wage earners and 65 per cent of males were reported in Khartoum, Blue Nile and Kassala Provinces. According to the 1970/71 Industrial Survey, industrial activity in the Sudan shows a strong regional concentration which, however, reflects the existing pattern of availability of infra-structure and service facilities and other significant "external" economies, and is also reflected by the pattern of income distribution. The Khartoum area accounted for 73 per cent of all establishments, 64.7 per cent of total employment, 47.2 per cent of total investment,

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* ILO "Extent and Characteristics of wage-earning employment in Africa: Some statistical estimates (by C. Doctor and M. Gallis). International Labour Review, February 1966.

66 per cent of production and 65 per cent of total wages. The Blue Nile and Kassala ranked second and third, though they were far below Khartoum area.

As far as employment creation is concerned, public and private sector industries differ significantly. The 1974 Employment Survey* data revealed that 24 public sector industrial establishments employ a total of 7,100 persons, or 296 per unit, as against 485 units of the private sector employing 32,684, or 68 per unit. The reason might be the fact that the government decision to employ people is not necessarily based on economic reasons as in most cases in the private sector. In addition the government ventures are likely to be much larger-scale than the private ones.

More than 40 per cent of the own account workers and 75 per cent of family workers were reported in Kordofan and Darfur Provinces, while half the total unemployed were in the South. The rate of unemployment in the South was more than four times higher than that in the Northern provinces. Presumably the high rate of unemployment in the South may be partly explained by the fact that at the time of the census in April 1973 many of the people in the Southern Sudan were

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* The Democratic Republic of the Sudan, Ministry of Public Administration. "Survey of Employment, Earnings and Hours of Work in Establishments employing 5 employees (and over)." Labour Market Information Unit - March 1974.

returning to the country from their refugee camps after the Addis Ababa peace conference.

It is among the self-employed workers, including peasants and small farmers and craftsmen in rural areas and those engaged in petty service activities in the urban areas, that underemployment and low incomes are particularly serious. Moreover, the prevalance of self-employed and family workers in the labour force of the country has important implications. It means that large sections of the labour force are unorganized and unable to influence the government national economic policy. Trade unions are, by definition, mainly concerned with defending the interests of wage earners, who represent only a relatively small minority of workers. The self-employed have little or no opportunity of influencing policy decisions concerning matters which directly affect their incomes and standards of living. Few of them are organized in co-operatives and organizations through which they can defend their interests and improve their production and hence their incomes.

5.4 Sectoral Development of Labour Force 1955/56 - 1982/83

In part one of this chapter we have examined the 1973 census classification of the labour force. In this part we try to see the sectoral development of

the labour force between the two censuses and the expected share of each sector at the end of the Six Year Plan (1977/78 - 1982/83).

As revealed by the census, agriculture is the main sector providing employment at present and is expected to lead for many years to come. Agriculture, comprising agriculture proper, hunting and fishing, accounted for 86 per cent of the total labour force in the 1955/56 census, the corresponding figure in 1973 being 71.8 per cent. 'Industry', comprising mining and quarrying, manufacturing, construction, electricity, gas and water, decreased from 5.61 per cent in 1955/56 to 5.5 per cent in 1973. It follows that the decrease in the share of agriculture is reflected by the growth of the services sector, which increased from 7.3 per cent to 17 per cent in the same period.

Table 5.3 Sectoral Distribution of Labour Force (Percentage)

Sector	% of Labour Force in Each Sector				
	1955/56	1969	1973	1976	1982/83
Agriculture	85.7	69.73	71.8	68.50	64.5
Industry	5.61	6.02	5.5	7.21	9.5
Services	7.37	17.48	17.2	19.19	23.0
Unskilled and unclassified	1.32	6.77	5.5	5.10	4.0
	100	100	100	100	100

Source: For 1955/56 and 1973 the population census of 55/56 and 1973; for the remainder, The Six Year Plan. Dept. of Statistics, Khartoum 1976.

As the table shows, the agricultural labour force is falling as a proportion of the total labour force, as is the case in many other less developed countries. However, a falling percentage does not imply a decline in absolute numbers. On the contrary, the agricultural labour force is increasing through time as can be seen from the table below.

Table 5.4 Growth and Sectoral Change in Labour Force

Year	Population	Labour Force			Agric. as % of total
		Total	Agric-ulture	Non-Agric. ulture	
1955/56	10,262,536	3,003,844	2,553,267	450,577	85
1969/70	13,233,000	4,085,000	2,837,083	1,247,917	69.7
1973	14,758,346	4,386,467	3,150,935	1,235,532	71.8
1976/77	16,127,000	5,015,000	3,435,275	1,579,725	68.5
1982/83	18,752,000	6,384,000	4,118,300	2,265,700	64.5

Source: See Table 5.3

It can be seen from the above table, that while the total labour force is expected to more than double between 1955/56 and 1982/83, the agricultural labour force might increase by one and a half times and the non-agricultural labour force by more than five times.

The absorption of a large proportion of the labour

force by the agricultural sector is a symptom typical of most less developed countries in their early stages of economic development, when due to low labour productivity and absence of capital a high proportion of the workforce is engaged in producing the basic subsistence needs of the society. With further economic development of the country, the proportion of labour needed in agriculture starts to decline and hence more labour may be transferred to other sectors.

Today the tendency in less developed countries is towards a steady decline in the relative importance of the labour force employed in agriculture and an increase in the size of the industrial labour force.* The reason might be attributed to the fact that low income is a term almost synonymous with a high percentage of labour being engaged in agriculture. Although countries differ in their resource endowments, which in some cases dictate a certain pattern of development, we find many agricultural countries which have more jobs in the non-agricultural sectors. The table overleaf classifies some countries according to proportion of labour engaged in agriculture.

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* ILO "The World Employment Programme" - Report of Director General to the International Labour Conference - Geneva 1969, P. 27.

Table 5.5 % of Labour engaged in Agriculture and Manufacturing in some selected countries

Country	Year	% of Lab. in Agric.	% in Manuf.
U. S. A.	1955	4.3	28.6
Canada	1955	9.9	28.6
New Zealand	1952	23.9	21.2
U. K.	1952	4.6	38.8
Brazil	1952	31.5	19.4
India	1954	48.7	16.7
Nigeria	1952	66.2	1.9
Indonesia	1952	56.4	8.2
Egypt	1954	35.8	10.7

Source: United Nations Yearbook on Income and Employment New York 1957.

Considering the fact that not all figures in the table refer to the same year, the table shows that countries like Canada and New Zealand, which are expected to be agricultural in terms of land resources, are not so in terms of the labour force engaged in agriculture. On the other hand countries with low per capita incomes such as India, Nigeria and Egypt are highly agricultural as regards the percentage of labour engaged in agriculture, with 48.7, 66.2 and 35.8 per cent respectively, while developed countries such as U.S.A. and U.K. have only 4.3 and 4.6 per cent of their labour force in agriculture respectively. It follows

that it seems there is an inverse correlation between per capita income and the proportion of the population in agriculture.

In the case of the Sudan, the shift of labour out of agriculture to industry was very low. As shown from table 5.3 it took 15 years for the proportion of labour in agriculture to decline by 15 per cent and another 7 years to decline by 1%. Because of the slow rate of growth of the industrial sector it seems the greater part of the loss to the agricultural labour force is going to services sector.

However, the Sudan with abundant potentially exploitable agricultural land is in contrast to some other developing countries which are characterized by a high man-land ratio such as India, Pakistan and Egypt. Only 3 per cent of the total land in the Sudan, or 9 per cent of the cultiviable land, is now under crops. Investment in agriculture in general and mechanized agriculture in particular is profitable enough to attract more capital and generate employment. The limited scope of the non-agricultural sectors in absorbing labour necessitates the rapid expansion of productive employment in agriculture.* The objective, however, should not be of course to create jobs as an

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* FAO "Agricultural Employment in Developing Countries" Agricultural Planning Studies No. 16 - Rome 1973.

end in itself, but to make them productive enough to yield sufficient income to satisfy basic human needs. However, the availability of land alone will not be enough to yield sufficient income. The problem in the country is a shortage of capital which hinders an efficient utilization of both labour and land. A relative abundance of land does not necessarily mean that labour is fully employed. Diminishing returns to labour inputs may set in very quickly because of capital scarcity. In other words, labour which may seem scarce in relation to land availabilities could at the same time be abundant in relation to the capital endowment, and hence be partly unemployed or underemployed.*

Recently the urban population has been increasing at a high rate. Between 1969 and 1976 the total increase in urban population was estimated at 1,181,000 persons, while the whole rural population increased by one and a half million persons. As we have seen before urban population constituted 20.4 per cent of total population in 1976 compared to 15.9 in 1969. Obviously this increase in urban population cannot all be explained by natural growth.

According to the 1955/56 census there were 400,000

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* Mabro, R.E. "Employment, Choice of Technology ... op. cit. P. 14.

migrants within provinces, while the 1973 census revealed 1,200,000 migrants. Out of the total migrants in 1973, 25.8 per cent went to urban areas and nearly half of them were below 30 years of age, which implies that the majority of migrants were young and seeking work. In addition thousands of persons migrated and are still migrating to oil-rich Arab countries. This is the case in spite of the fact that modern agriculture is partly suffering from shortages of labour. If migration is to be checked the agricultural sector must be given priority when setting economic and social plans. Some investigators have attributed the "flight from the land" to the effect of primary education upon the expectations and values of the rural population, and they suggest a change in education policy as the answer to the problem.* If the current type of education has led people to value urban life more highly than rural, then changing the type of education might reverse their order of values. This could be done by introducing agricultural subjects into the curriculum of the primary schools or by developing an extensive system of post-primary agricultural vocational schools.

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* ILO Employment Policy in Africa" - Part I. Problems and Policies - Third African Regional Conference, Accra - Dec. 1969 - Geneva 1969.

The priority to be given to agricultural development does not mean that industry should be ignored. Although the rate of growth of the industrial labour force has been less than 6 per cent of labour force, the number of workers - especially skilled workers - who will be needed if a dynamic industrial development is to evolve is still considerable. Moreover, there is some sort of complementarity between the two sectors. Modern agriculture, which is partly mechanized, largely depends on industry for the supply of spare parts and skilled workers.

However, in spite of the increase in industrial investment during the last two or three decades, the rate of growth of the industrial jobs was very small. Many factors can be held responsible for this slow rate of growth.

1. The adjustments of minimum wages for unskilled workers, under pressure from trade unions, encouraged many business men to divert their investments into more capital-intensive techniques. For example, an investment of LS 7.8 million in industry between 1956-60 led to the employment of 4,093 persons, while an investment of LS 23.7 million between 1960-1964 absorbed 8,092. Although the amount invested increased by more than three times, the number of persons employed less than

doubled.*

2. It is likely that through time the productivity of labour increased in some firms. As labour becomes more productive employers are expected to rely on the existing work force to increase their output rather than appoint new labourers.

3. The recent commercial policies adopted by the Ministry of Trade encourage people to import goods from abroad without payment obligations through the Bank of the Sudan. Such policies as "Barter" and "Nil Value" gave a chance to some people to import goods which are produced locally. The local firms being unable to compete successfully in producing similar products found difficulties in selling their produce and hence some of them were unable to expand.

4. The policies of nationalization and confiscation followed in 1970 made the private sector hesitant to invest. Although some of the confiscated Sudanese firms were later returned to their previous owners, it is possible that many people are still reluctant to invest.

However, there is evidence in the Sudan that agriculture is more labour intensive than industry. Jobs in industry are increased at a higher social cost

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* Awad, M.H. "Government Policy towards Private Investment in the Sudan." Extrait du 1 Egypt Conterperaine No. 340, April 1970, P.194.

than if they were in agriculture, where the country's potentialities lies.

5.5. Conclusion

A rough picture of the structure of employment has emerged in this chapter, derived from provisional tabulations from the 1973 population census. An important difficulty about the labourforce concept is that the number of people wanting work varies with the amount of work available. Many of the self-employed and unpaid family workers who do not bother to look for work when they think there is no chance of finding any, start to do so if the chances improve. This may lead to changes in the size of the labourforce and makes it hard to predict.

Agriculture as an economic sector and farming as an occupation are both shown to account for nearly three-quarters of total employment in 1973. The industrial sector accounts for only 3 to 5 per cent as against 12 per cent for the services sector. However, the percentage share of the agricultural sector is declining, but this does not mean that the absolute numbers occupied in farming are declining. On the contrary, they are still increasing and are expected to continue increasing for many years. This is going to pose a problem of finding sufficient productive employment for these rising numbers. The agricultural sector with its

abundant potentially exploitable land is perhaps, the sector most capable of providing future jobs. At present the concentration of the largest agricultural schemes in Blue Nile and Kassala Provinces is leading to the existence of labour shortages in these provinces. This will be discussed in more detail in the next chapter.

CHAPTER 6

Seasonal Labour Requirements and the Supply of Labour in Agriculture in the Sudan

6.1 Introduction

One of the problems facing the Sudanese economy is that, while there seems to be an overall abundance of labour in the country, modern agriculture in certain provinces faces seasonal shortages of labour at harvest time. The most typical case is the Gezira Scheme where about half a million persons are usually attracted from other areas of the country in order to pick cotton for three or four months every year. The mechanized rainfed agriculture is another region where shortages of seasonal labour at harvest time are reported to be actually felt.* Although in the Gezira the annual average of monthly forecast excess of labour demand over supply expressed as a proportion of monthly demand reveals a strong decline

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* The author's own interviews with farm owners in mechanized rainfed agriculture. Mafaza, December 1976.

in labour shortages since 1967,* there is a high probability that when the new projects (such as Rahad, Kenana and other sugar schemes) come into production over the next few years the shortage of labour will become more acute.** The purpose of this chapter is to test how justifiable is this hypothesis. An attempt has been made to examine the position of the monthly supply of agricultural labour in each province in 1973. In addition the monthly labour requirements for the main crops has been worked out to see how available labour within the Blue Nile Province could satisfy the growing demand.

6.2 Total Monthly supply of Labour in Agriculture

As we have seen in the previous chapter, manpower was classified in the 1973 census according to the type of production mainly engaged in by the enterprise or establishment in which each individual was employed. This classification is shown in table 1, Appendix 5.2. Column (2) represents agriculture, forests and hunting. In the absence of a separate column for animal rearing it is likely that most of

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* Mohamed E. Mustafa, "The Labour Markets: problems in spatial, seasonal and skill allocations." Paper submitted to the preparatory Conference for the Comprehensive Employment Strategy Mission to the Sudan, 1975.

** See Lorne Barling, "Sudan gambles on Rapid Development" - an article in Financial Times, Feb. 16th, 1978.

the nomads has been reported under Column (2). It is also possible that some nomads were reported under Column (11) (occupations unclassified by industry), but even if we consider all column (11) as nomads it is still far less than the size of the nomadic labour force in different provinces.

Therefore, to avoid bias in our estimation of the supply of agricultural labour, nomads have to be excluded. The main reason is that nomads whose main activity is animal husbandry are not likely to be available for agricultural work.

As mentioned before, nomads constituted 15 per cent of the total population in 1955/56. This was considered as an underestimation resulting from the use of an unsatisfactory definition of nomads. The census definition, being based on the type of dwelling, excluded a large number of nomads. Moreover, the census excluded a number of nomads such as those cultivating small farms for a short period. However, realising these defects the census authorities re-estimated the nomads at 40 per cent of the total population. Other estimates gave different results for the nomads. For example, Henin* gave an estimate of 32 per cent for the Northern Sudan. Moreover, FAO** gave an estimate of three

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* R. Henin "Are-estimation of the Nomadic Population of the Six Northern Provinces." Sudan Notes and Records No. 47

** FAO "Report on the livestock identification Mission" Vol. 1 and II - Rome 1971.

million for the whole country. The 1973 census, using the same definition as that of 1955/56, gave an estimate of 1.6 million for the nomads. In 1955/56 provincial distribution of the nomads were estimated to be 16.2, 51.9, 16, 58.6, 27.9 and 27.3 per cent of the population in Blue Nile, Darfur, Khartoum, Kassala, Kordofan and Northern Provinces respectively. In the three southern provinces nomads were expected to be not less than 50 per cent of the population.* It is these estimates which we used here, assuming they remained constant for 1973.

Using the above estimates the nomadic populations in each province in 1973 were worked out. 53 per cent of them were above 15 years of age, composed of 50.5 per cent males and 49.5 per cent females. It is fortunate that the participation rates for each sex in each province are available from the 1973 census. (Appendix 5.1). The total economically active nomads were calculated for both sexes as shown in table 6.1.

From the table it is clear that the number of the economically active nomads is much larger than the figures in table 1 Appendix 5.2 (column (11) "Unclassified by Industry". Here it is assumed that all this column is made up of nomads. In each province those reported

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* M.S. Bayoumi, et al. "Guide Lines towards development of Nomadism in the Sudan." A paper presented to the ILO Comprehensive Employment Strategy Mission to the Sudan - 1974/75.

Table 6.1 Distribution of Economically Active Nomads in Each Province in 1973

Province	Total Population in 1973	% of Nomads	Total Nomads	Nomads 15 and over	Male			Female		
					Total Male	Activity Rate	In Labour-Force	Total Female	Activity Rate	In Labour Force
Darfur	2,139,615	52	1,112,600	589,578	297,787	96.12	286,233	291,891	55.68	162,525
Kordofan	2,202,345	30	660,700	350,171	176,836	92.40	163,396	173,335	41.41	71,778
Khartoum	1,145,921	16	172,800	91,584	46,250	76.44	35,354	45,334	2.55	1,156
Blue Nile	3,740,405	16	598,464	317,186	160,179	84.32	135,063	157,007	9.36	14,696
Kassala	1,547,475	59	913,010	483,895	244,367	86.29	210,864	239,528	7.86	19,066
Northern	957,671	27	258,571	137,043	69,207	69.69	48,230	68,836	2.46	1,693
Equatoria	791,738	50	395,870	209,811	105,954	81.75	86,617	103,857	8.52	8,849
Bahr El Ghazal	139,613	50	698,256	370,076	186,888	96.16	179,712	183,188	29.90	54,773
Upper Nile	836,263	50	418,131	221,609	111,913	92.16	103,139	109,686	12.18	13,399

under column (11) were subtracted from the economically active nomads and the result was subtracted from those reported under column (2) "Agriculture Forest and Hunting" to give the agricultural labour force in each province.

Assuming 25 working days per month, and further assuming female labour inputs are equivalent to male labour inputs, the total monthly labour supply in agriculture is estimated for each province as shown in table 6.2. No allowances were made for those engaged in forests and hunting, which are expected to introduce an upward bias in our estimate.

Table 6.2 Monthly Labour Supply in Agriculture in each province in 1973/74

Province	Supply of labour engaged in agric. only (man days)	
	Labour Supply (man days)	% of Total
Darfur	4,914,225	11
Kordofan	9,495,100	22
Khartoum	1,341,275	3
Blue Nile	15,637,650	36
Kassala	2,394,400	6
Northern	1,366,900	3
Equatoria	1,356,075	3
Bahr El Ghazal	4,927,900	11
Upper Nile	1,729,022	5
All Sudan	43,162,547	100

6.3 The Demand for Labour in Agriculture

Having seen the supply of labour available for agriculture in each province it is now time to see the amount of labour requirements. The amount of labour required is affected by many factors among which the following factors look important.

1. The size of land under crop:

Other things being equal the larger the size of land under crop the more labour will be needed for agricultural operations. However, a given land might be cultivated more than once according to the mode of irrigation available.

2. The labour input required per crop:

Not all crops are the same in their requirements of labour, as some are more labour intensive. The same crops also differ in the amounts of labour they require for different operations. While other factors such as the crop intensity and the amount of mechanization are also important, we believe that the size of land under cultivation and the labour intensity of crops cultivated are the main determinants of labour demand in each province.

As mentioned before, the cultivated area in 1973 was about 3 per cent of total land or 8.5 per cent of cultivable land. The shares of irrigated, flooded and

rainfed agriculture in total acreage were 16.7, 1.2 and 82.1 per cent respectively. More than half of the production of main crops were in irrigated agriculture, which was mainly in Blue Nile and Kassala Provinces. More than 90 per cent of land under mechanized rainfed agriculture was also in these two provinces. The total cropped area under different crops in different provinces in 1973 is shown in table 6.3.

As can be seen from the table the largest area cropped in 1973 was under Dura, followed by Dukhn, sesame, groundnuts and cotton respectively. It seems that the kind of crop cultivated, and its distribution between different areas of the country and within the same province, is more important in determining the labour requirements in agriculture than total land under cultivation. For example, sesame, which had more than one and a half times the area of cotton, does not need large numbers of migrants. The reason might be the fact that its cultivation is more evenly distributed among seven provinces while three-quarters of the land under cotton is in Blue Nile Province. The labour intensity of crops also seems to be an important factor. Dukhn, which constituted more than double the area under cotton, does not usually need seasonal migration although two-thirds of it is cropped in one province. Moreover, how the peak demand for labour coincides for different crops

Table 6.3 Distribution of Cropped Land under Different Crops in each province in 1973/74 (000 feddans)

Province / Crop	% of total land	Northern	Khar-toum	Blue Nile	Kassala	Kord-ofan	Darfur	Upper Nile	Bahr El Ghazal	Equat-oria	Sudan
Cotton	9	5	-	873	163	125	-	-	-	-	1,166
Dura	38	16	-	1,791	1,457	1,126	175	353	120	170	5,208
Dukhn	20	-	-	109	-	1,736	796	-	-	-	2,641
Wheat	3	25	-	274	120	-	-	-	-	-	419
Groundnut	13	1	-	284	45	984	282	-	32	85	1,724
Sesame	16	-	-	468	242	1,061	88	48	33	27	2,167
Other Crops	1	30	-	26	54	17	-	-	-	-	190
All Crops	100	77	-	3,825	2,081	5,049	1,341	401	185	282	13,515

Source: Yearbook of Agricultural Statistics: Department of Agricultural Economics: Ministry of Agriculture, Food and Natural Resources, Khartoum - June 1974 - Page 12.

in different regions is a crucial factor in the determination of labour demand in agriculture. If the land under crop alone was responsible for the demand for labour in different provinces, migration would be from Blue Nile to Kordofan as the former had 36 per cent of the country's agricultural labourers and 28 per cent of land under crop, while the latter had 37 per cent of land under crop and 22 per cent of the country's agricultural labourers. While other factors such as the female participation ratio and the pattern of cropping are also important, we believe that it is the crop intensity for labour and the coinciding of peak seasons for different crops which causes seasonal shortages of labour.

6.3.1. Labour Requirements in the Blue Nile Province:

To examine whether the available labour supply in Blue Nile Province is sufficient to satisfy labour requirements, the monthly labour requirements for the main crops were worked out as shown in table 6.4. The table includes labour requirements for only four crops. In addition to these crops we have seen that in the Blue Nile Province 249,000 feddans of Dukhn, 468,000 of sesame and 17,000 of sugar cane were under cultivation in 1973. The Labour requirements of the crops other than those on the table were not calculated

Table 6.4 Seasonal requirements for principal crops in the Gezira Area

(man-days/month/feddan and man-days/month/cropped area)

Month/ Crop	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Cotton	10.70	15.22	11.45	4.31	6.30	0.91	0.82	5.50	5.40	2.30	1.22	1.50
Dura	0.10	-	-	-	0.63	1.23	4.75	2.68	0.98	2.08	10.34	3.24
Wheat	1.40	1.26	0.63	1.18	0.12	-	-	-	0.34	1.04	2.10	1.22
Groundnuts	10.02	2.17	-	-	0.34	3.05	6.89	7.82	2.92	2.36	2.31	12.71
Crop Area (000)												
Cotton (863)	9,493	12,949	9,493	3,707	5,437	785	707	4,746	4,700	1,985	1,105	1,284
Dura (1,791)	179	-	-	-	54	2,203	8,507	4,979	1,788	3,725	18,519	5,803
Wheat (274)	384	345	173	323	33	-	-	-	93	280	575	340
Groundnuts (295)	2,950	640	-	-	100	785	2,033	2,307	861	696	690	3,749
Total:	13,006	13,934	9,666	4,030	5,624	3,773	11,247	12,032	7,442	6,686	20,889	11,176

Source: 1. For the labour requirements for principal crops. M.S. Osman "Large scale agriculture and employment creation." Paper submitted to the preparatory conference for the Comprehensive Employment Strategy Mission to the Sudan 1975.

2. For area undercrop: See table 6.3

because their monthly labour requirements per feddan are not available. Thus the table underestimates the total labour requirements in the province. Against this, the 1973 census by including only those above 15 years of age underestimates the total labour supply. In a country where about 47 per cent of the population are below 15 years and where children from a fairly young age devote part of their time to productive activities, their exclusion will obviously underestimate the labour supply. Taking all these factors into consideration and assuming the mobility of labour within the Blue Nile Province the following conclusions can be drawn:

1. The available labour supply in the Blue Nile Province seems at first sight sufficient for all months except November when around four million man days are needed from other provinces.
2. However, when we consider the fact that the figures for labour demand are for only four crops which constituted together three-quarters of land under crop we believe that more shortages of labour are likely. This is especially true as the peaks of other crops coincide with some of those in the table.
3. Cotton is the most labour intensive crop, while wheat is the least as most of its agricultural operations are highly mechanized.

6.3.2. Total Monthly Labour Requirements for the Agricultural Sector:

Unfortunately, no detailed field work on labour requirements in various operations for different crops has yet been carried out except for the Gezira Scheme. The FAO perspective study of Agricultural Development for the Sudan in 1973 gives an overall figure for the total monthly labour requirement in the country as a whole.* This study, however, does not explain the basis on which they made their calculation. Further, an expert technical committee consisting of knowledgeable senior local technical personnel, set up by the Sudan - Mission of the Arab Fund for Economic and Social Development, has estimated labour inputs in various agricultural operations.

On the basis of these yardsticks and the area under cultivation in each province under different crops under each mode of agriculture in 1973/74, Nigam** worked out the overall position of the total labour requirement in various agricultural operations in different provinces as shown in table 6.5.

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* FAO "Perspective study of Agricultural Development for the Democratic Republic of the Sudan" - Annexe on "Farm Organization and Farm Income" - ESP/AGS/PS/SUD/73/19 - 1973 - Appendix Table XI.

** S. Bl. Nigam "The Labour Requirement and Supply Situation in Agriculture in the Sudan (1973/1985)." Paper presented to the ILO Comprehensive Strategy Mission to the Sudan 1974/1975.

Table 6.5 Total Monthly Labour Requirements (in thousand man-days) in 1973

Month/ Province	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Northern	478	1,323	222	28	28	46	55	392	530	562	760	610
Kassala	2,528	3,282	1,756	715	715	3,129	2,614	8,464	3,922	3,182	11,163	2,043
Khartoum	56	212	34	-	-	2	3	70	74	90	94	94
Blue Nile	12,301	16,098	8,678	3,454	3,436	5,077	6,310	10,639	14,191	12,093	15,106	5,716
Darfur	48	192	32	-	-	2,619	4,548	2,606	4,374	3,888	5,490	555
Kordofan	804	822	534	138	12	8,835	17,021	13,174	14,483	12,626	18,807	3,305
Upper Nile	336	432	240	96	96	633	623	1,428	775	624	1,777	349
Equatoria	-	-	-	-	-	635	848	750	775	624	855	260
Bahr El Ghazal	-	-	-	-	-	477	729	819	496	441	643	160
Total Sudan:	16,551	22,361	11,496	4,431	4,270	19,992	32,754	38,340	39,635	34,175	54,695	13,085

From the table it is clear that labour requirements increase starting from June/July when the land preparation, sowing and weeding operations coincide for many crops. November is a peak labour requirement period when most of the crops are harvested. January and February are the peak months for cotton, when picking is most active.

In view of the shaky data base, not too much meaning should be attached to these figures. Obviously, the basic assumptions made in the estimation of supply of labour in agriculture is subject to error. With these reservations in mind, the above examination of labour requirements and supply in agriculture shows that in all provinces except in Blue Nile, Kassala and Kordofan, the labour supply exceeds the demand. But if the situation is looked at from the point of view of the country as a whole it will be observed that supply far exceeds demand in all months except in November when there is a shortage of about 21 million man days.

Cotton picking, which is normally practiced between January and April, is the most labour intensive operation. It needs around 600,000 workers every year. Gezira tenants and local labour living in Gezira provide one-third, whereas the remainder are migrants from Blue Nile Province and other provinces. From the table overleaf

Table 6.6 Labour Requirements as % of Supply in Agriculture in 1973

Month	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Demand	16,551	22,361	11,496	4,431	4,270	19,992	32,754	38,335	39,635	34,175	54,695	13,085
$\frac{\text{Demand}}{\text{Supply}} \times 100$	38.3	51.8	26.6	10.0	9.8	46.3	75.7	88.8	91.8	79.0	126.7	30.3

Source: See Table 7 and 10

it is clear that during the picking season more than half of the country's labour force are idle. Therefore, the shortage is not absolute and what is important is how to encourage people to migrate. This will be discussed in chapter 9.

In Kassala Province the local supply of agricultural labour seems to fall short of seasonal requirements in most of the year. This can possibly be explained by the higher productivity of labour. In addition Kassala is a thinly populated province with only 7.4 per cent of the total population of the country. Although 17 per cent of the land under crop in 1973 was in this province, according to our estimates only 6 per cent of the country's agricultural labour force were estimated to be in the province.

The fact that no labour is attracted into the Sudan from other countries in November implies that there is either underestimation of supply or over - estimation of demand. However, as regards the supply side there seems to be a downward bias for the following reasons:

1. Our figures are for standard man-days, it is perfectly possible to work overtime.
2. As mentioned before, the exclusion of those under 15 years of age from labour force in the census

under-estimated the supply of labour.

3. Our estimates excluded those who are likely to be engaged in non-agricultural activities in rural areas nor did they include the nomads. It is assumed that some persons from these two groups are available for seasonal agricultural activities, as revealed by our own survey.

4. For the census purpose, only if the housewife has a job outside the home or participates regularly and to a large extent in farm work, is she counted as economically active. Such a definition led to the exclusion of the vast majority of women from the labour force.

5. Our own survey revealed the fact that in rural areas many people whose main occupation is not farming actually own sizeable plots of land where they devote part of their time annually. Although these plots of land were considered in estimating labour requirements, no account was taken when calculating the supply of agricultural labour for those whose main occupation was not farming but who devoted part of their time to farming.

6. No account was taken of the supply of foreign labour from neighbouring countries. This labour constituted in the past a sizeable part of labour supply in certain areas. Although the government has banned this kind of immigration, there are still many people who come from neighbouring countries for seasonal work.

If an allowance is made, even partly, for the above six downward biases, it will probably lead to a considerable revision in the figures for the supply of labour available for agricultural operations.

6.4 The Future Likely Situation of Manpower in the Sudan

After having looked at the present labour situation in agriculture, we try to throw some light on the likely situation by the end of the Six Year Plan. According to the proposals of the Arab Fund for Economic and Social Development it is estimated that the area under cultivation will increase from about 15 million feddans in 1973-74 to about 21.5 million feddan in 1985, i.e. by about 50 per cent. The proposed increases are 81 per cent, 86 per cent and 33 per cent for irrigated, mechanized and traditional agriculture respectively.

The Arab Fund proposals are higher than those considered by the FAO in its country perspective study. The lower alternatives of the FAO study envisaged the area under cultivation in 1985 as 17.1 million feddans, while the high alternative put it at 19.4 million feddans.

In 1973 about 82 per cent of land under cultivation was in the three provinces of Kordofan, Blue Nile and Kassala, which accounted for 40 per cent of total population and 42 per cent of the agricultural labour force. Blue Nile and Kassala Provinces alone covered more than

90 per cent of the irrigated and 85 per cent of the mechanized area in the country. Darfur Province, which accounted for 23 per cent of the agricultural labour force, had only 10.2 per cent of the area under crop. The three Southern provinces, with 20 per cent of the country's agricultural labour, had only 6.7 per cent of the area under crop. From the point of view of the present scarcity of seasonal labour in some provinces and taking into account the resource endowments of different provinces, it would be more appropriate to give greater attention to the relatively more under-developed provinces when planning further extension and development of the area under cultivation. Such a policy is also likely to lead to a more equitable distribution of income as people in Darfur and the three Southern provinces will probably have more land under cultivation.

Unfortunately, the Arab Fund proposals for increase in cultivated area by 1985 does not make substantial improvements in regional cropped land distribution. Of the total increase in area of about 7 million feddans proposed by 1985, about 75 per cent is envisaged in the already favoured provinces of Kordofan, Blue Nile and Kassala. This is likely to lead to a more unequal distribution of income and to a more difficult labour situation in future.

6.4.1 The Likely Supply of Agricultural Labour in 1982:

Table 6.7 gives two estimates of the likely availability of labour in agriculture in 1982. The first estimate as shown in column (II) of the table gives the projected rural population (in man days) excluding the nomads. The second column (13) gives total man days for those who would be engaged on agricultural activities only. Since the 1973 census does not classify the rural population into agricultural and non-agricultural population we have no alternative but to use data from other sources. Fortunately, the census of agriculture gives detailed information with regard to the distribution of working population amongst those engaged in agriculture and non-agricultural activities. In the census of agriculture a person who spent most of his/her working time in operations related to agriculture was classified as engaged in agricultural activities, the occupation of other working persons being classified as non-agricultural activities. As no information is available about the percentage of rural population engaged in agriculture in the three Southern provinces, the average of the six Northern provinces (74.0) has been applied. Assuming the male and female activity rates will remain unchanged in 1982 and the percentage of rural population engaged in agriculture will be the same in 1982 as that revealed by the census of agriculture, the total monthly labour available for agriculture in 1982 is estimated as

Table 6.7 : AVAILABLE MONTHLY LABOUR SUPPLY OF RURAL POPULATION EXCLUDING THE NOMADS IN 1982 (MAN-DAYS)

Province	Rural male pop.	Acti-vity rate	Econ. active pop.	Total mnthly wrkg days	Total mnthly avble. man-days	Rural fem. pop.	Acti-vity rate	Econ. active pop.	Total mnthly wrkg days	Total mnthly avble. man-days	Total rural supply of lab.	% rural pop. eng. in agri.	Total supply agri. lab. only	Share of each prov. in total supply of agri. lab.
Bahr El Gazal	415800	96.16	399833	25	9995825	441500	24.90	109934	25	2748350	12744175	74.0	9,430,689	9.7
Upper Nile	282600	92.16	260444	25	6511100	287700	12.18	35042	25	876050	8387150	74.0	5,466,491	5.6
Equatoria	167700	81.75	137095	25	3427375	201500	8.52	17168	25	429200	386575	74.0	2,853,865	3.0
Khartoum	117400	76.44	89741	25	2243525	115900	2.55	2955	25	43875	3317400	40.4	936,229	1.0
Kassala	329400	86.29	284239	25	7105975	282300	7.96	22471	25	561775	7667750	94.1	7,215,352	7.5
Blue Nile	1981300	84.32	1670632	25	41767050	1303400	9.36	121998	25	3049950	41767050	59.4	24,809,627	25.7
Kordofan	983500	92.40	908754	25	22718850	598800	41.41	247963	25	6199075	28917925	86.1	24,898,333	25.7
Darfur	555100	86.12	478052	25	11951300	749800	55.68	417489	25	10437224	22388525	82.8	18,582,480	19.2
Northern	203200	69.69	141610	25	3540250	285400	2.46	7021	25	175525	3715775	68.5	2,545,305	2.6
ALL SUDAN	3859700	88.75	3348290	25	83707550	4004300	23.74	950621	25	23765525	107473075	74.0	96,738,372	100.0

Source:- 1. For population in 1982: Population Projections for the Six Year Plan presented by demographic and manpower committee (pp.75-85
2. For activity rates: 1973 Population Census
3. For percentage of rural population engaged in agriculture, The 1964-65 Agricultural Census

shown in table 6.7.

6.4.2. The Likely Manpower Balance in 1982:

The expected horizontal increase in crop production in the Sudan during the Six Year Plan is represented by table 6.8. According to this table, the total area under crop is expected to increase by about 7 million feddans. More than half the total area is expected to be under dura, while another quarter of the total area is expected to be devoted to groundnuts and cotton.

Table 6.8 Horizontal Expected Expansion in Crop Production in 1982 (000 Feddans)

Crop	Present Area Under Crop	Expected Area under crop in 1982	Increase in Area		Increase in area under crop as % of total increase
			Total Increase	% Increase	
Long Staple Cotton	760	790	30	3.9	1
Medium "	210	350	140	66.7	2
Short "	155	350	195	12.6	3
Dura	6,000	9,100	3,100	52	53
Wheat	622	890	268	43	5
Dukhn	622	2,800	300	12	5
Rice	241	100	76	400	1
Maize	210	315	105	50	2
Kassafa	110	180	70	54	1
Sesame	2,200	2,780	500	23	9
Groundnuts	1,840	2,900	1,060	58	18
Horse Beans	36	55	19	53	-
Total:	19,667	20,530	5,863	40	100

Source: The Six Year Plan Volume 2 Table 12-1 Page 43 (in Arabic).

Not only are three-quarters of the additional areas proposed for development to be devoted to the most labour intensive crops, but also the expected expansion is supposed to be mainly concentrated in Blue Nile, Kassala and Kordofan provinces which are already facing problems of seasonal labour shortages in some areas. By the end of the plan period some agricultural schemes such as Rahad, Kenana and other sugar schemes are expected to start production. These new projects in areas supplying the existing projects with labour are themselves going to compete for scarce labour in future. This is particularly the case as the peaks of the crops in the new schemes are expected to coincide with the existing ones. Therefore, the expected pattern of land and crop distribution in the plan supports our hypothesis that the country will face a clear labour shortage when these new projects start to produce. However, we believe that these shortages of labour are not absolute and it is possible to ease them by taking certain measures.

6.5 Measures to Ease Problems of Labour Shortages

6.5.1 Possibility of Different peaks for Different Crops:

As we have seen, the shortage of farm labour is due to competing demand in peak periods from October to April when several crops e.g. cotton, dura, dukhn, wheat, sesame, groundnuts etc. compete for the limited labour

available. In many cases the peak demand for labour for different crops coincides, causing labour shortages and hence leading to a drop in crop yields, as witnessed in Khasm El Girba and Suki schemes where conflicts in groundnuts and cotton operations led to a significant drop in output* in 1971.

It is the fact that different areas grow different crops and the different crops are sown, weeded and harvested at different times that alone makes seasonal migration possible. Moreover, differences in peaks allow the farmers in modern agriculture to supply labour during longer periods. The present and likely future demand and supply for labour is shown in Figs. 1 and 2 for the three provinces of Kordofan, Blue Nile and Kassala and for the country as a whole. Further, the monthly demand for labour for the most important crops are shown for the Blue Nile Province.

The conclusions that can be drawn from the labour situation for the country are that:

1. The future pattern of labour demand will be similar to the present pattern, since the cropping pattern and their labour requirements are expected to follow

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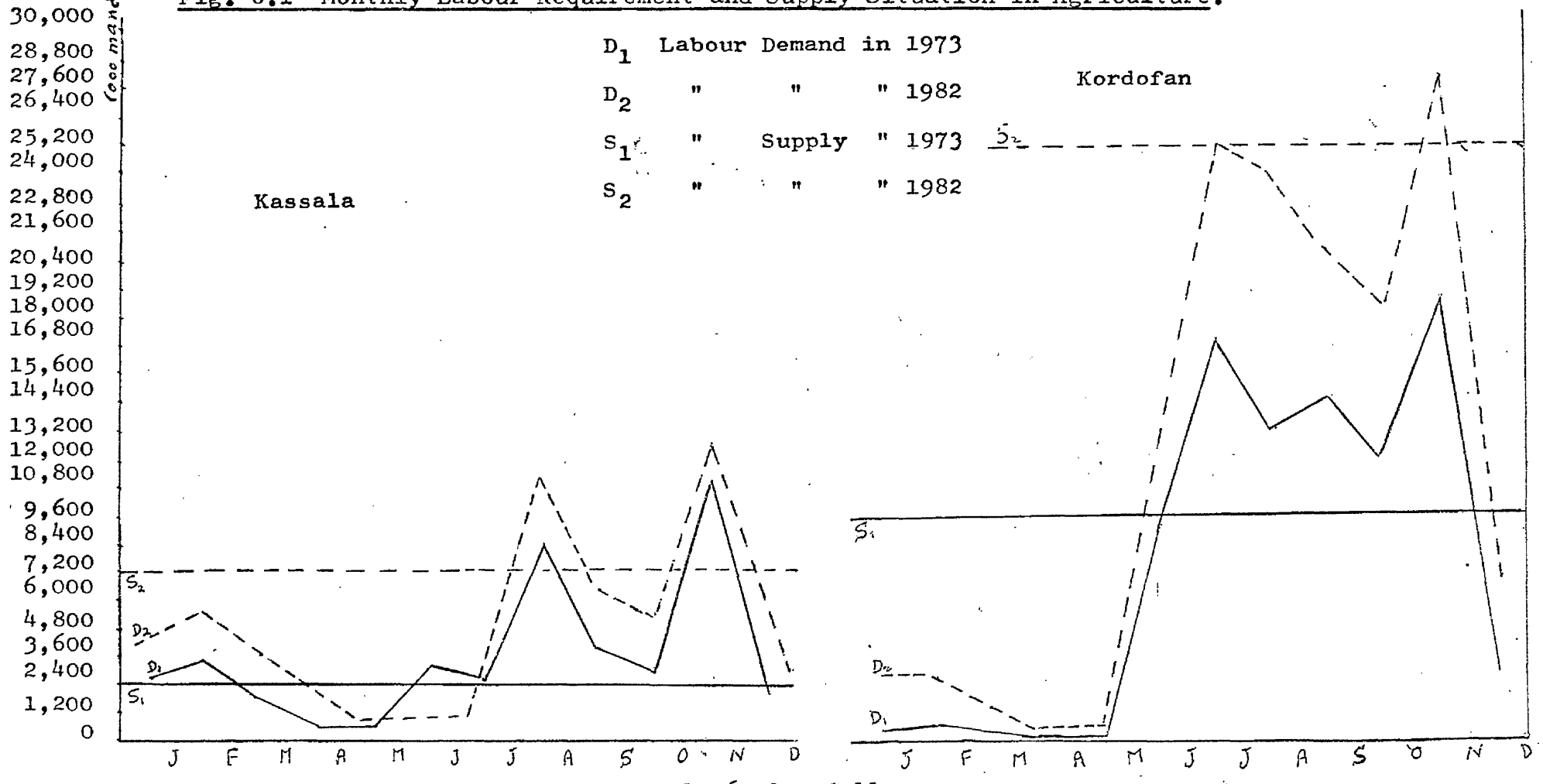
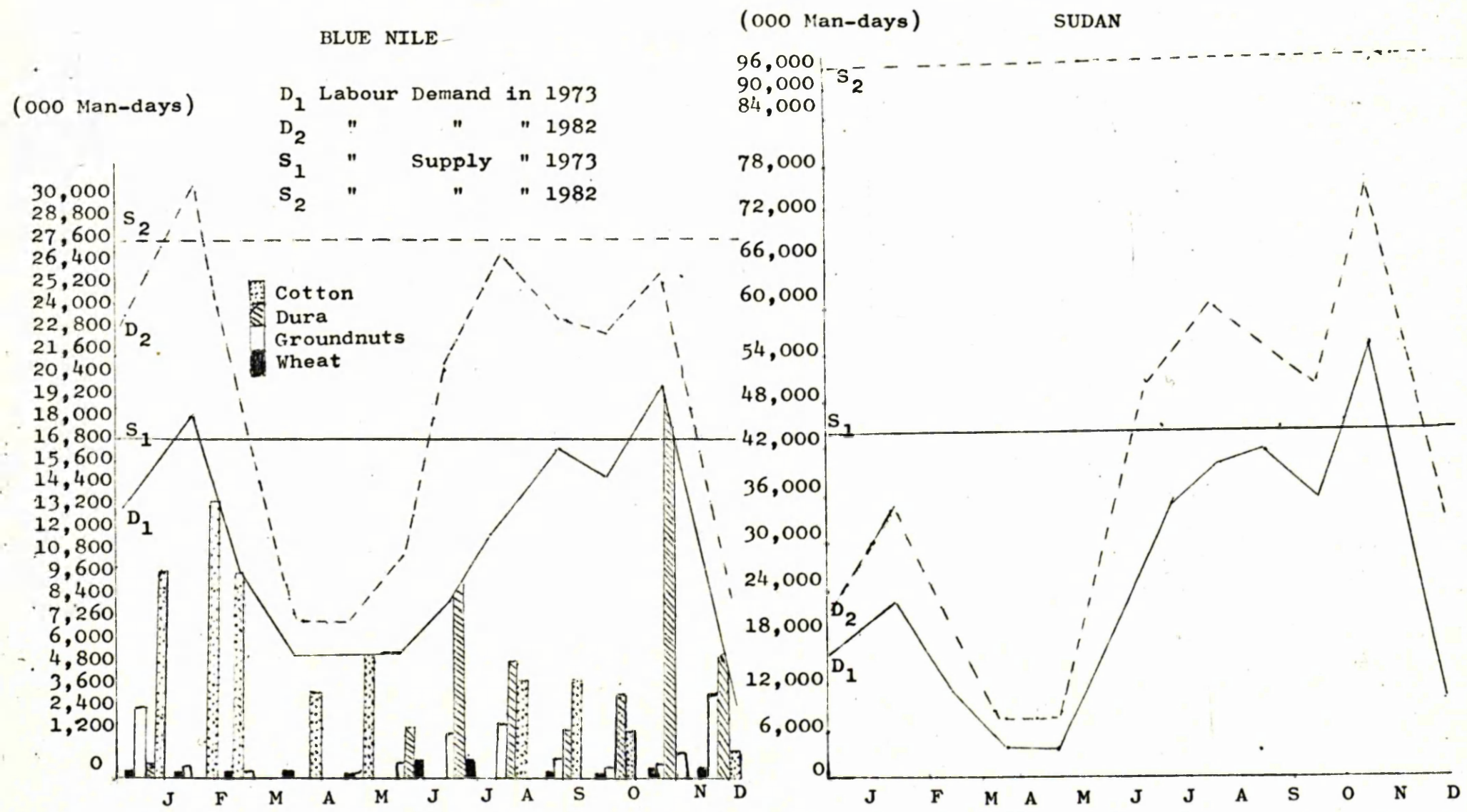
* Ministry of Agriculture and Natural Resources. Annual Report for the Season 1971-72. Government Printing Press - Khartoum 1972, P.3.

Fig. 6.1 Monthly Labour Requirement and Supply Situation in Agriculture.



Source: See Table 6, 9 and 11

Fig 6.2 Monthly Labour Requirement and Supply Situation in Agriculture



Source: See Tables 6,9 and 11

the present pattern.

2. While certain differences exist in certain regions, the country as a whole faces a high demand for labour from July to November. In June, July and August, land preparation, cultivation and weeding for the main crops such as dura, sesame, groundnuts, cotton and dukhn coincide. The demand for labour reaches its peak in November when harvesting of dura, seaame and groundnuts coincide; then it drops to the minimum in December and rises again in February when cotton picking reaches its peak.
3. Although the demand for labour is nearly the same in Blue Nile province in November and April, the labour shortage is felt only in the latter. The main reason as revealed by our own survey might be the differences in pay between dura cutting and cotton picking operations. Low payment in cotton picking might in fact be considered the only reason for the shortage if we take into consideration the fact that at the peak demand period for cotton more than 50 per cent of the country's agricultural labour force are idle.

Earlier sowing in some areas, or planting short duration varieties of crops, in addition to mechanization of certain operations, are likely to affect peak dates of employment in different areas. The stretching of the period of certain operations is, however, subject

to climatic and other technical factors. For example, cultivation of a crop in areas irrigated by rainfall is difficult to adjust without consideration of the climate. But even in such modes of agriculture, crop varieties with different durations can be cultivated. Other operations such as weeding and harvesting cannot be stretched over a longer period without reducing yields. In Gezira the labour demand for groundnut peaks in June and July and in December and January. The demand for cotton labour is concentrated in the period from January to April, with peak periods also in August and September. The highest labour demand occurs in November for harvesting dura and groundnuts, and in February for cotton picking. According to a survey conducted in the region the peak level of employment in Gezira as a whole and in Managil occurred on 15th February and 18th January respectively.* Since the large agricultural schemes are mainly irrigated from the River Nile, a minor shift in periods of cultivation might be possible without reducing crop output. For example, if groundnut cultivation started in the Gezira scheme 15 days earlier than the usual time, the harvest time would not coincide with peak cotton picking. If this were feasible, the groundnut harvest would be in December, which is a low labour-demand period. A small

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* Survey of Labour Conditions in Gezira - Department of Statistics - Khartoum, September 1959 - P.2.

shift in the time of dura cultivation would ease the labour situation in November. Different varieties of dura in rainfed agriculture would lead to different harvest periods.

6.5.2 The Farm Size:

The imbalance in present schemes between family labour supply and labour requirements could be corrected through a combination of increased mechanization, crop diversification, encouraging migration and a deliberate effort to spread the cropping season. Future land allotment policies in large-scale irrigated schemes and mechanized rainfed areas should try to bring the size of the plot into better balance with the available labour potential in the family. Consideration should also be given towards reducing the size of plots in some of the present large-scale irrigated and mechanized schemes. The present policy of plot allotment to the tenants in mechanized rainfed agriculture is unfortunately biased against small farmers, as a deposit of one thousand pounds in advance is necessary. Moreover, in Gezira officially the tenant is not allowed to buy or sell part or the whole of his plot. If it were possible to do so it would help the tenant to adjust the size of his land to the size of his family labour.

The problem is how to decide the optimum size of land in different schemes. In irrigated schemes, since the tenant and his family do a larger proportion of the work on tenancies of 5 feddans and under, it might seem reasonable to expect that the number of hired labourers per feddan cultivated would be lowest on this size tenancy. But this was not so, as revealed by a survey* which found that for Gezira and Managil, hired labour per feddan cultivated was least on tenancies of 5 to 10 feddans. The explanation, apparently, is that this sized tenancy, being larger, enables the hired to be better organized and this more than offsets the lesser proportion of work done by the tenant and his family. Therefore if tenancies of 5 to 10 feddans are generally the most economical, this sized tenancy should be adopted. As a matter of fact, productivity is higher on smaller sized farms than those of bigger sizes.** Therefore farms of size 5 - 10 feddans would probably be more productive than those of 10 and over and more efficient from the point of view of labour utilization than those of less than 5 feddans. By decreasing the size of plots in future schemes, the number of

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* Survey of Labour Conditions in Gezira ibid P.5.

** Rao, C.H.H. "Alternative Explanations of the Inverse Relationship between farm size and output in India". Indian Economic Review, Vol. 1, 1966.

Also See, Sen, A.K. "Employment, Technology and Development", Clarendon, Oxford 1975.

beneficiaries would increase and thus the number of families on the scheme and the supply of labour from local sources would be correspondingly increased. Under Rahad agricultural plan, each tenant will be granted 22 feddans of land to cultivate. Obviously plots of this size will be too great for one farmer and his family.

6.5.3. Mechanization of Agriculture:

Each individual operation required for crop production can be performed with many alternative techniques requiring varying proportions of labour per unit of land. The total labour input per feddan for a given crop depends on the extent to which some or all of these operations are mechanized. The introduction of different duration varieties would allow the labour requirement for a crop to become more evenly spread throughout longer periods, while mechanization would help to perform agricultural operations with less labour in a short time.

The use of mechanization is continuing to increase, especially for land preparation. About 3.2 million feddans, or 28 per cent of the total rainfed lands, were prepared mechanically in 1973, and this increased to 3.5 million feddans in 1974. Mechanized lands accounted for about 31 per cent of the total production from rainfed lands in 1973. As for the different crops,

mechanization was used for the preparation of about 42 per cent of the total land devoted to the production of dura, dukhn, wheat and rice in 1974, comprising 36 per cent of rainfed land and 86 per cent of irrigated land. The present stock of tractors is about 6,000 units operating over 4 million feddans.

In 1975, due to labour shortages, the Gezira Scheme took certain steps towards both diversification and mechanization. The area under cotton decreased from 600 thousand feddans to 400 thousand, while that under wheat increased from 591 thousand feddans in 1974 to 714 thousand in 1975*. The expected increase in production of wheat, which was fully mechanized, was not realized due to poor yields and extensive damage by rats. Total production was estimated to be 264 thousand tons in 1975 as compared to 269 thousand tons in 1974. Moreover, some planners in the Sudan are considering diversification from long staple cotton to other varieties of cotton that can be mechanized.

6.5.4. Encouraging Seasonal Migration:

This should be considered as the most important measure to deal with labour shortages in modern agriculture. At the time of peak demand for labour in modern agriculture nearly half the country's labour force is

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* Current Agricultural Statistics. Cas-Vol. 1, No. 2 June 1976 - Statistics Section. Dept. of Agricultural Economics - Ministry of Agriculture, Food and Natural Resources - P.2.

seasonally unemployed in traditional agriculture. At present seasonal migration to modern agriculture seems to be unattractive considering the distances travelled and the level of earnings. The possible ways of making seasonal migration more attractive will be discussed in chapter 9.

6.6 Conclusion

The development potential of the Sudan's economy is eliciting growing attention. The Sudan can make a significant contribution to world food supplies if its large areas of fertile land are brought under cultivation. However, unless manpower considerations are taken into account in future development, shortage of labour might impose a bottleneck on agricultural development.

In this chapter an attempt has been made to examine the extent to which the notion of labour shortage is relevant in discussing modern agriculture. Using data from different sources and making certain assumptions, the supply and demand for labour in 1973 and the likely situation in 1982/83 have been estimated. Unfortunately, there is probably much doubt about the reliability of the data used in these estimates, but with this reservation in mind, some conclusions about the manpower situation in agriculture can be made. Although it is true that modern agriculture will face labour shortages

when the new agricultural schemes start production, these shortages are not absolute. Encouraging seasonal migration of labour from traditional agriculture will partly deal with the problem of labour shortages. This will be discussed in chapter 9.

CHAPTER 7

The Agricultural Workers Survey of 1976/77

7.1 Planning of the Survey

In view of the absence of any reliable information about problems of employment in rural areas, it was thought necessary to carry out a detailed survey in certain areas. The determination of the items on which information was to be collected, the degree of detail to be attempted, and the ways in which the information could best be obtained constituted the most difficult part of the planning of the survey.

However, careful consideration was given at the outset to the purpose for which the survey was undertaken, the type of information it was to collect and the uses to which the information obtained was to be put. In addition to direct collaboration with experts in various subjects, the statistical advice of the United Nations Expert for Economic and Demographic Analysis of the Sudanese census of 1973 was sought in the first stages of planning.

Since the survey was likely to provide information that would be of value to a number of different Sudanese

organizations such as the Gezira Scheme, Rahad project and the University of Khartoum, all were fully briefed about its objectives and asked for any suggestions for its improvement. This led to requests for the collection of supplementary items of information for the ILO and the University of Khartoum. Some of the supplementary items were not necessary for the purpose for which the survey was originally planned but enabled the results to be used for other purposes. In this way the usefulness of the survey was increased. However, being aware of the danger of overloading the survey with the collection of miscellaneous items of information, the requests were very carefully reviewed.

Before starting to carry out the survey, it was found necessary to become familiar with the work that had already been done by others on the topic and related subjects. The most recent and comprehensive study about the Sudan was carried out in 1975 within the framework of the ILO World Employment Programme under an international team of experts.* The author had the opportunity to have useful discussion with the head of the mission and other experts in Chr. Michelsen Institute in Bergen as well as at the ILO headquarters (Geneva); also with other members of the ILO mission to the Sudan.

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* Led by Professor J. Faaland, Director of Research at the Chr. Michelsen Institute, Bergen, Norway.

No doubt these discussions about their experiences and the difficulties met in the field and other related subjects formed useful background knowledge for the field work.

7.2 Objectives

The principal objective of the survey was to collect information about some problems of employment in traditional agriculture. In particular, data was collected about seasonal and long-term migration, underemployment and hours of work in seasonal work, migrants' motivation, sources of income and many other related subjects. A detailed investigation along these lines has been lacking although some partial attempts have been made. The documentary information about rural areas was not only unreliable, but also had serious limitations. It was virtually useless for deriving any information about future behaviour, and of little value in uncovering motives, opinions and other information usually elicited by careful questioning.

In addition to information about demographic characteristics of households, data were collected about the occupational status of the rural population. The data confirmed the expectation that agriculture was the most important economic activity, but it also revealed that villagers engaged themselves in a wide range of activities other than agriculture. The effects

of these activities on the decision to migrate need to be considered in order to understand seasonal migration.

In previous surveys migration in the country had been looked upon from the standpoint of the receiving areas. The purpose of this study was to investigate the situation in sending areas, the costs and benefits of migration, how to increase the rate of seasonal migration, the opinion of rural households about the level of wages in agriculture, etc. Data were also collected about output in traditional agriculture and hours of production in seasonal work. Such data were used to throw some light on the extent of underemployment.

In a rural community where cultivable land is easily available and where one could easily procure gainful employment albeit producing a low income, there is little point in trying to measure unemployment. In fact, other surveys have revealed a very low rate of unemployment in rural areas. Under such circumstances low incomes become more important to consider as a serious employment problem. Therefore, one of the main objectives of the survey was to collect data about the distribution and sources of income.

Attention was given not only to the usefulness of such topics, but also to their feasibility for investigation through the household survey. For example,

although underemployment in agriculture is a basic problem of employment, it is difficult to obtain reliable information about it or to measure its size. However, in spite of measurement and definitional difficulties, data were obtained about the average hours worked per day and the marginal productivity of labour in traditional agriculture.

7.3 Methodology of Study

The basic information for this survey was obtained from case studies of 19 villages during December 1976 and January 1977. The survey was carried out on a full count basis in all these villages, totalling 913 households. At the time of the survey 113 households were reported to be away from their homes. Out of the 800 households visited, only one household was reported to be refusing to give answers, thereby giving a very high respondent rate. Questions were put only to the head of the households, as he was the one more likely to be in charge, to make the majority of decisions, organize the household economy and take part in the social activities in the village. The high rate of absenteeism reported in the survey was due to the fact that by the time of the survey some households had left their villages to charcoal and dura areas. In the case of El Sharafa village it was found that most of the inhabitants had left home to participate in cotton

picking in the Suki area. The heads of these households were met in Suki and interviewed, and those already interviewed in El Sharafa were re-interviewed to check the reliability of the information they had given before.

Although no definite claims can be made that the villages were particularly typical or reporesentative of the whole area the common pattern of life imposed by nature and the climate on the people created remarkable similarities in demographic and economic characteristics in the area. A proper random sample would have extended the survey beyond the resources and time available. The villages were, however, chosen as representative not only of the regions covered, but also in a general way of the different agricultural areas.

The choice of the case study technique, instead of a large scale statistical survey, was necessitated by the limited facilities and time available in relation to the large area to be covered. However, as mentioned above, there is a fairly high degree of homogeneity in respect of the ways of life and economic activities, leading one to believe that the findings will have fairly general validity for the area as a whole. Moreover, the case study technique followed in the survey permitted a microscopic examination of the local community and detailed observation of socio-economic

phenomena, which would not have been feasible in a more extensive survey.

7.4 Formulation of the Questionnaires*

The general approach taken in designing the questionnaire took into account the following:

1. Simplicity. It should be easy to interpret and communicate with respondents. In a country where there are wide differences in the level of education and language usage among the population, "difficult" wording could cause confusion. Therefore the questions were phrased in 'lowest common denominator' vocabulary likely to be comprehensible to the least educated. Each question aimed to be as simple as possible.
2. Arrangement of questions was carefully planned. Not only were the questions arranged on the schedule form to allow proper space for answers, but the order of the questions was such as to facilitate the answering of each question in turn. Questions more likely to elicit the interest of the respondent were placed early in the schedule, the rationale being that, if the interest of the respondent was aroused and he became involved, he would be willing to continue with questions that might be less interesting or that required patient

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* See the Schedule of the questionnaires in Appendix 7.1.

thought. In order to help rapport between interviewer and respondent the more 'sensitive' questions, such as those on household income, were placed towards the end of the questionnaire.

3. Answers were meant to be objective and capable of tabulation.

4. Questions were allowed to be put in a general form to the respondents except question 13 and 14 which were opinion questions where different forms of wordings would affect the answer and therefore it was necessary to adhere to the exact form of the questions. Moreover, as the meaning of each question was meant to be identical for each respondent, their context ought to be identical, and since all preceding questions constituted part of the context, the sequence of the questions was intended to be identical.*

5. It was found useful to give the interviewers an opportunity of making general remarks on special points. This was done by including space for observations, and they were given some guidance on the type of observations required. Although such observations do not easily lend themselves to exact analysis, they were of considerable value in drawing attention to relevant facts not covered

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* Stephen, A. "Interviewing - its forms and functions." New York 1965.

by the questionnaire itself. These observations which in conjunction with data from the survey provided valuable information, were also useful in pre-testing the accuracy and reliability of the original data from the survey.

After the schedule was drafted, it was tried out on a group of farmers and a few competent investigators were requested to go through it and make suggestions for its improvements.*

7.5 Field Work and Related Aspects

7.5.1 Publicity:

The purpose and scope of the study were advertised through Sudan radio and local newspapers in Gezira. The areas to be surveyed were visited several times and wide contacts were made with the leaders of social and political organizations existing in each village, in addition to contacts with sheikhs and other influential persons in the area. This was because advance information about factors influencing participation might be useful in making contact with the respondent set and for commencement of interviewing.

It was generally believed that if sheikhs were convinced of the value of the survey the battle would

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* The author is indebted to Dr. Galal El Din, M.E. of University of Khartoum and Dr. Mahajan, B.M. - the United Nations expert for the Dept. of Statistics for their technical advice.

be half won. So, the survey and its purposes were explained to the sheikhs who in turn discussed it with their friends. The role of the sheikhs seemed to be very important since they accompanied the interviewers and talked to the tribesmen about the value of the survey and urged them to give correct answers. All these contacts and advertisements considerably facilitated co-operation from villages covered by the survey.

7.5.2. Training of Interviewers:

The field work of the survey was carried out during December 1976 and January 1977. In all, nine interviewers and one field inspector were involved in the enumeration. All the interviewers were males, four of them recruited from the Department of Statistics, one from the Department of Labour, two students from University of Khartoum and the others from secondary school graduates. Because of the nature of the survey, the quality of the interviewers was considered in detail and great efforts were made to select appropriate persons. Most of those selected were considered patient, polite, tactful and of unquestioned integrity.

Before the field work started, the interviewers were given a training course which lasted 10 days and consisted of the following major elements:

(a) Explanation of the overall nature of the survey, why it was undertaken and what use would be made of the results.

(b) Teaching interviewing techniques.

(c) Briefing about how to fill in the questionnaires and a brief account of the form they would be required to deal with.

(d) The interviewer's role in field work.

Sufficient written material in the form of instructions for the conduct of the field work and copies of the schedule to be used were made available to the interviewers. The written material was furnished in the form of instructions and a set of samples of difficulties generally met in the field.*

7.5.3 The Pilot Survey:

A pre-testing study of the questionnaires was conducted after the completion of the lectures for the benefit of the interviewers. The main items pre-tested were the suitability of the design and the wording of the questionnaires. Our aim was to make the questions easily understood by respondents, willingly answered by them and taken by the whole population unambiguously to mean the same thing. For this purpose the inter-

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* In this respect the author had benefited from the census of agriculture. See the Republic of the Sudan "Census of Agriculture - Instructions to field enumerators: concepts, definitions and procedures" Khartoum 1964.

viewers were taken to a neighbouring village to conduct an interview which was first carried out by the advanced trainees of the Department of Statistics. Each trainee was asked to record the results of the interview according to his own interpretation. These records were scrutinised and the discrepancies observed were discussed further. In particular the United Nations classification of occupations was discovered to be unsuitable in the case of Sudan, and a new broad classification was introduced in the schedule.

Additional benefits of the pilot survey were to determine:

1. Ways of putting the subject to the respondents to achieve high response.
2. Ways in which to word questions to elicit precise data. This involved determining the function of questions, whether to collect facts or opinions, and whether to do this by open or closed questioning.
3. The length of time needed to complete the questionnaire.
4. The best layout of the schedule so as to make it manageable in the most difficult field conditions.

Finally a written test was made covering among other things, problems relating to concepts and definitions, and expected problems to be met in the field. In addition, each interviewer was tested orally. On the

basis of the assessment the four trainees recruited from Department of Statistics gave a satisfactory performance, another four had shown an ability to grasp the subject but required some more help to attain a satisfactory level, and only one had shown little understanding and was hence eliminated.

7.6 Some Difficulties and Lessons learned from the Questionnaire and the Field Work

As our survey was one of the pioneering studies in the Sudan, it was felt that some difficulties and lessons learned with regard to the field work and related aspects would be useful for those undertaking similar surveys in future. Some of these are briefly discussed below.

1. The determination of the details of the information to be collected constitutes one of the main difficulties in the planning process. The detailed problems which arise in dealing with what information is necessary and how it can best be determined is not an easy task. The basic problem is essentially that of the selection of the most relevant items of information or types of observation from all those which it is practicable to collect and which might conceivably have a bearing on the matter under investigation.
2. The collection of information and the process of recalling the respondents involved excessive travelling. A survey covering four provinces or nearly one-third of the country's area, of course, makes it necessary

to travel long distances. Such travel becomes more difficult when we consider the lack of proper roads in rural areas.

3. In illiterate and non-numerate societies in which records of age are lacking and no vital registration exists, the determination of the ages of the people constitutes one of the most difficult problems confronting researchers. The interviewers were given lists of known incidents the dates of which had been determined. Such lists were also useful to help respondents in question 12.

4. It would have been more useful to have a few female interviewers in view of the difficulty for males to see female heads of households, as is the case in some Muslim societies.

5. The experience in the field indicated that some questions, particularly those on demographic aspects, were more easily understood by the respondent than others such as those on economic aspects. Although the heads of households provided the bulk of data, they often consulted their wives as regards their age and the ages of children. While consulting others might to some extent have improved the accuracy of age reporting, it had a negative effect on opinion questions where we only required the answer of the respondent. This raises the question of where to interview the head of household. In future researches we suggest that one should inter-

view rural population and especially heads of households in their place of work rather than their place of residence.

6. As in most studies in developing countries, questions on income created ambiguity. It was difficult to impute values for items which had been received in kind. This was partly because of lack of knowledge and/or memory lapse. Another difficulty arose from the fact that in rural areas some households live in groups in the form of large families, and in such cases where a household income is part of the family's income it is difficult for the household to determine its own share. A third problem in determining incomes was that the villagers, and especially the farmers, tended to give the net and not the gross income. It is a common practice for farmers and agricultural workers to take loans from the Gezira Board and local merchants, which are later refunded from gross income of crops produced. When they were asked about their annual incomes they tended to report their incomes exclusive of the repayment of the loans. However, more explanation of the concept of income and its classification into sources considerably improved the accuracy of income reporting.

7. Another difficulty arose when reporting livestock ownership. Unlike the case of income the problem did not originate from misunderstanding of the

concept, but from the tendency to under-report what they owned.

8. The participation of children younger than 14 or 15 years is usually patchy. Their contribution and variable efficiency is possibly best determined through observation rather than interviewing, especially since it seems unlikely that children would give reliable answers in interviews.

In spite of the above mentioned problems and limited facilities, the questionnaire was a comprehensive one and concentrated efforts have been made to make the survey as complete and comprehensive as possible.

CHAPTER 8

Demographic and Social Characteristics of Households and Long-term Migration.

8.1 Introduction

In the previous chapters we have discussed how agricultural development in the country has been characterized by a marked dualism between high-income irrigated and mechanized rainfed agriculture on the one hand, and low-income traditional agriculture and livestock raising on the other hand. It has been pointed out that the country simultaneously suffers from both underemployment and labour shortages. Fortunately, seasonal unemployment in traditional agriculture coincides with seasonal labour shortages in modern agriculture. At present, low productivity and lack of income-earning opportunities, and the limited carrying capacity of rangelands, cause almost 20 per cent of the country's labourforce to migrate each year.

However, the Sudan Gezira Board has taken the view that it is becoming difficult to attract seasonal labour. In an attempt to ease labour shortages it took some steps in 1974/75 towards diversification and mechanization. The cropping pattern was changed

by substantially reducing the area under cotton, by increasing the area under wheat and groundnuts, and by increasing the intensity of land use from 60 per cent to 80 per cent. Most of the agricultural operations of groundnuts and wheat are mechanized.

As mentioned before, the shortages experienced in modern agriculture need not be considered absolute. Our examination of the manpower situation in agriculture in chapter 6 revealed that at the time of peak demand for labour in cotton picking more than half the country's agricultural labour force is idle. Rural labour markets seem to be capable of correcting labour shortages in modern agriculture provided seasonal migration is made more attractive. Using information gathered in the Agricultural Workers Survey, an attempt has been made to test the hypothesis that seasonal migration may be responsive to increases in migrants' wages. This will be examined in the next chapter.

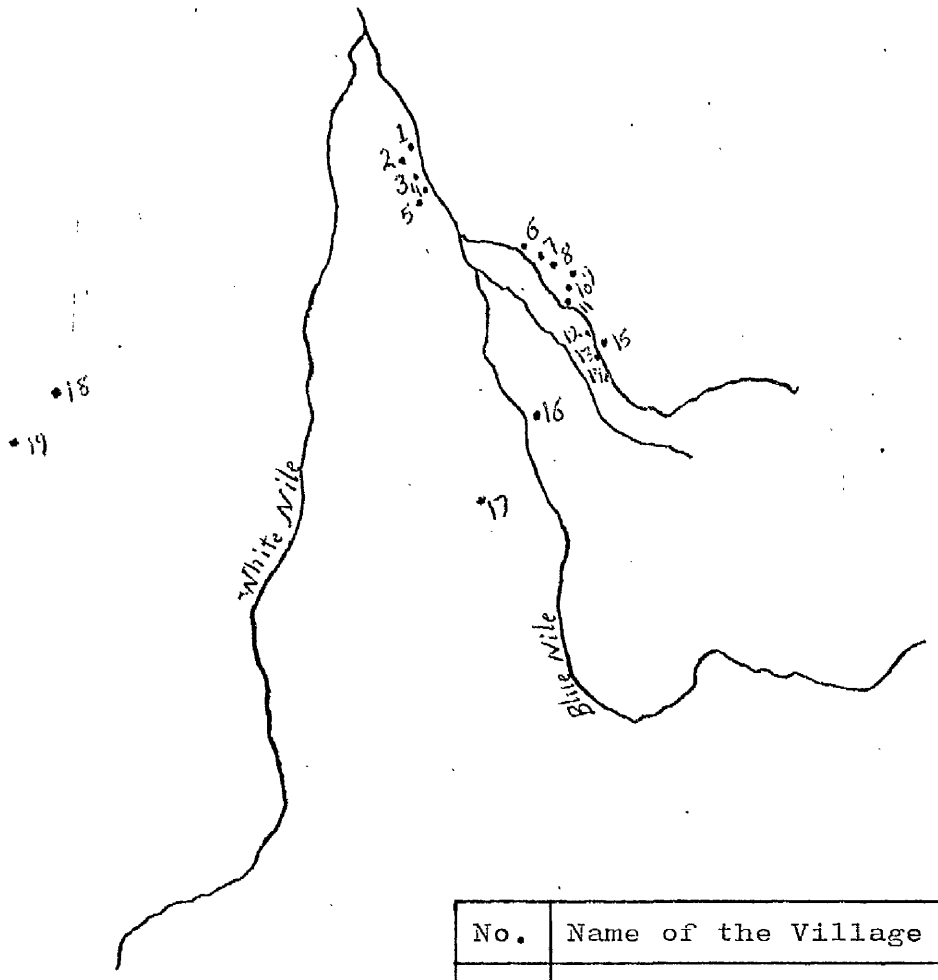
In this chapter we intend to discuss certain issues concerning the demographic and social characteristics of the households covered by the survey. This is followed by a discussion of long-term migration in rural areas. The analysis in this and the next chapter is based almost entirely on data derived from the 1976/77 Agricultural Workers Survey.

8.2 Coverage

The survey covered 800 households represented by their heads, 746 males and 54 females. For the purpose of the survey a household was defined as a group of persons living in one dwelling unit and normally sharing the principal meals. The concept of household as defined here is different from the term family which means a group of people having certain relationships by blood and/or marriage. Questions were put to heads of households as they were likely to be the most well informed.

The households were selected from 19 villages covering six regions. According to the administrative division of the country, the survey covered villages from four provinces - 200 households from Kordofan, 355 from Gezira, 100 from Blue Nile and 145 from Kassala. A further classification by different agricultural regions or modes is as follows: 547 households from traditional agriculture, 194 from irrigated and 49 from mechanized rainfed agriculture. The reasons why nearly two-thirds of households were selected from traditional agriculture are obvious. First, more than two-thirds of the country's population derive their livelihood in this sector; secondly, about 60 per cent of the country's total acreage is within this sector; and thirdly, the potential contribution of traditional agriculture and its eventual

Fig. 8.1 Geographical Distribution of Villages covered by the Survey



No.	Name of the Village
1	Wed Solfab
2	Hilat Hamad
3	Hassahisa
4	Arbagy
5	El La'ota
6	Wed El Obeid North
7	El Babanosa
8	El Timait
9	Ain El Liwaiga
10	El Fatirab
11	El Digairab
12	Wed El Obeid South
13	Arabas
14	Abu Digin
15	El Sharafa
16	Suki
17	Um Arda
18	El Ogaila
19	Abu Sid

Table 8.1 Distribution of Households covered by the Survey

Region	Villages Covered		Number of House-Holds	Percentage of House-holds in each region
	No.	Name of Village		
Gezira	1	Wed Solfab	45	
	2	Arbagy	33	
	3	Hassahisa	20	
	4	El La'ota	22	
	5	Hilat Hamad	24	
			144	18
Northern Rahad	1	Ain El Liwaiga	53	
	2	El Fatirab	16	
	3	El Timait	16	
	4	El Babanosa	23	
	5	Wed El Obeid North	105	
	6	El Digairab	17	
			230	29
Southern Rahad	1	Wed El Obeid South	32	
	2	Arabas	20	
	3	Abu Digin	39	
	4	El Sharafa	35	
			126	16
Dali	1	Um Arda	49	6
Kordofan	1	El Ogaila	88	
	2	Abu Sid	112	
			200	25
Suki	1	Suki	15	6
All Regions	19		800	100

modernization have been recommended.* For example, despite primitive techniques of production, this sector produces 35 per cent of the main crops' production. It is in this sector that problems of low income and underemployment seem to be most serious. This is largely why it supplies most seasonal workers in modern farming. The villages covered by the survey are shown in map 7.1 and table 7.1.

8.3 Demographic and Social Characteristics of Households

8.3.1. Place of Birth:

Forty per cent of respondents were found to have been born in a village, town or district other than that where they were interviewed; 59 per cent reported the same birth-place as the village of enumeration; the remainder were born outside the Sudan. The 40 per cent could be taken as a crude measure of internal migration. The extent of migration may, however, be greater than these data suggest, since many persons may have migrated more than once in their lifetime and some may have returned to their place of birth. Most of this migration, however, was found to be short distance movement, since only 8 per cent of the households reported province of birth other than that of residence.

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* Ali M. El Hassan (ed.) "An Introduction to the Sudan Economy." Khartoum University Press, 1976.

As for the marital status of the heads of households, 85 per cent of them were married, 10 per cent unmarried, 3 per cent widowed and 2 per cent divorced. Out of those married nearly 4 per cent reported having more than one wife.

8.3.2. Educational Status:

Data on the highest level of school attened have been tabulated by sex and age for, first, the heads of households, and secondly, members of the households. The following educational levels were distinguished; no school, Khalwa* (3 - 6 years of age), elementary (7 - 11 years of age) and above elementary. A person is reported as having attended a school of given level though he may have done so only for a short time without completing the curriculum. The cultural influence of Khalwas can be considerable in the formation of attitudes and morals.

The survey data indicates levels of education achieved by men, women, boys and girls. Of the 800 heads of households, who were mostly males, 511 had been to no school at all, 209 only to Khalwa, 75 to elementary only, and only 5 to above elementary. Education of women practically did not exist in rural

* Traditional kindergarten school which provides mainly language and religious instruction for children aged 3 - 6 years.

areas, as only 21 out of 730 women were reported as having attended any schools at all. While half the boys above seven years of age had some measure of schooling, only one-third of the girls were in the corresponding category. Thus the formal schooling level of the survey population is low,* though it has risen significantly. That the situation has been improving can be seen from the fact that the educational level of boys is significantly above that of men, and that of girls above that of women.

8.3.3. Main Occupation:

During the initial stage of planning the survey, attempts were made to collect information about employment status of the rural population and to ascertain the unemployment rate. The observations of the pilot survey indicated that the traditional communities studied enjoyed a state similar to that of "full employment", in the sense that everyone shared in the work and had a role recognised by all members of the community as a justification for a share in output and income. This role did not necessarily involve full time work. In such circumstances it may not make sense to

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* See Galal El Din, M.E., "The Human Factor in the Rahad Project Area - Results of Population and Socio-Economic Survey." - Khartoum December, 1975.

speak of employment or unemployment rates.

Also during the pilot survey it was found that none of the available international lists of occupations was suitable to the circumstances of the country. This was specially true in rural areas where agriculture was the dominant occupation. Many people did not sell their output; nor had they any clear idea of the amount of time spent on different occupations. One practicable course which was adopted was to record a person's main occupation in the event of his having several occupations, as the one he considered most important. No rigid definition could be laid down as to what constituted a main occupation. However, in the case of a respondent having more than one occupation, interviewers were told to record as main occupation the one which generated more income. The question about sources of income was a useful check for identification of 'main occupation'. For the purpose of the survey, occupations of households covered were classified into five groups as shown in the table below.

Table 8:2 Occupational Classification of Households

Occupational Group	Number of Households	% of Households
Farmers	454	57
Agricultural Workers	196	24
Shop Owners	38	5
Shepherds	6	1
Other Occupations	106	13
All Occupations	800	100

As was expected, in rural areas agriculture was found to be the main occupation for the majority of working people. 57 per cent of households in the sample reported their main occupation as farmers. Although no question was asked about secondary occupations of households, it was observed that the majority of those who did not have farming as their main activity, followed it as a subsidiary occupation. The appreciable incidence of non-farming occupations in rural areas as revealed by the survey implies that in rural areas there are many occupations which generate income.

In principle, a classification by status (as employer, employee, etc.) would have been desirable, especially for agricultural workers, but variations in local usage of terms relevant to the status categories were an obstacle to such a classification. In spite of these difficulties, households in 7 villages were asked about their employment status. The results revealed that the vast majority of households are either self-employed or unpaid family workers. The employer and employee categories were reported to be low in rural areas.

A cross-classification of occupation and place of birth justified the proposition that agricultural

workers are the most mobile group. As can be seen from table 7.3, 90 per cent of agricultural workers were found to be born in places other than that of residence. The farmers, being attached to their land and village social life, had remarkably lower migratory tendencies.

Table 8.3 Different Occupational Groups classified according to Place of Birth

Place of Birth / Occupational Group	Place of Birth is the same as place of residence		Place of birth is different from place of residence	
	Total	%	Total	%
Farmers	336	74	118	26
Agricultural Workers	19	10	177	90
Shop Owners	26	68	12	32
Shepherds	6	100	-	-
Others	71	67	35	33

8.3.4. Land Holdings:

In the traditional sector consisting mostly of rainland , there have been no proper land surveys so far, and many of the farmers have no idea about the extent of their cultivation. Land has been far more abundant than can be brought under cultivation, and there is in general no individual freehold ownership of land. Instead, tribal and community control and ownership predominates. A farmer's land holding depends

upon the area he and his family can clear and sow at the beginning of the short rainy season. This seldom amounts to more than a few acres unless tractors and machinery can be employed.*

Traditionally, if a member of a tribe has been tilling a piece of land over several years, he exercises the right to farm it. If, however, for some reason he does not cultivate it during a given season, he is supposed to lose the right of its possession and that piece of land could be alloted to some other member of the tribe.** This is, however, the legal position, and in practice an individual is rarely deprived of the right of cultivation because of the hard labour put into clearing the land from bush and the abundance of uncleared land. Technically, therefore, all uncultivated land in the rain tract is considered as common tribal property not belonging to any agricultural holding. This also includes the land under gum arabic trees. Here while the trees are owned by certain members, the land under them can be cultivated by any member of the tribe.

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* Lebon, J.H.G., "Land Use in Sudan." The world land survey. Monograph No. 4, 1965.

Also see Awad, M.H., "The Evaluation of Landownership in the Sudan: The Middle East Journal - PP. 212-228, 1971.

** See The Republic of the Sudan, "Some results of the Pilot Sample Survey of Agriculture in some councils of the Republic of the Sudan, 1963-'64."

For the purpose of our survey, land was defined as all land used partly or wholly for agricultural production managed by the household alone or with the assistance of others, irrespective of location. It may be located in a compact block or in scattered fragments.

The distribution of land holdings is given in table 8.4. As was expected, only 10 per cent of the households covered by the survey reported no land holding.

Unlike the case in many other less developed countries, even agricultural workers in the Sudan hold enough land to cultivate. The fact that even the non-farmers had considerable holdings was consistent with our finding that the majority of those households who had non-farming occupations as their main occupation had farming as a secondary or subsidiary occupation. It would have been more appropriate to have more classes of holdings at the stage of coding, since more than 30 per cent of households reported having more than 30 feddans.

The overall average holding is 23 feddans per household. The largest size of holdings were held by shop owners who had the ability to buy or rent tractors for land preparation and crop cultivation. In addition they could hire labour at harvest time. The share-cropping system was not found to be common in areas of rainfed

Table 8.4 Land Distribution according to Occupational Groups

Class of Holdings (Feddans)	All Households		Farmers		Agric. Workers		Shop Owners		Shepherds		Others	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
No land	86	10	11	3	47	24	3	8	3	50	22	21
1 - 5	102	13	34	8	60	31	1	3	1	16.7	6	6
6 - 10	89	11	45	10	28	14	9	10	1	16.7	11	11
11 - 15	110	14	74	17	20	10	2	5			14	14
16 - 20	88	11	56	12	19	10	2	5	1	16.6	10	10
21 - 25	51	6	34	7	2	1	4	10			11	11
26 - 30	29	4	15	3	5	2.5	4	10			5	5
31 +	245	31	185	40	15	7.5	18	49			2	2
All Sizes	800	100	454	100	196	100	38	100	6	100	106	100

agriculture as land is not in short supply and no irrigation problem exists.

8.3.5. Livestock Ownership:

It is important to throw some light on ownership of livestock in the agricultural sector because firstly, it is an important source of income; secondly, it constitutes part of household labour input; and thirdly, it is an important factor in the decision to migrate. But it is also important to take into consideration the fact that the reported data on livestock was highly under-estimated. This was because unlike the case of land holdings, households were reluctant to answer questions about livestock ownership because it is related to tax imposition. However, efforts were made to explain to respondents the aim of the survey and how they came to be selected by chance.

Table 8.5 overleaf shows the livestock distribution classified according to the households' occupational status. Nearly 80% of households had livestock at the time of the survey. All the shepherds by definition said they owned animals, while only 40% of agricultural workers were animal owners. Shepherds had above average numbers of all animals except cattle which none of them owned. Farmers owned less animals than shop-owners on average for all categories. Goats were the most

Table 8.5 Livestock Ownership

Do you own livestock			If yes what sort of livestock and how much do you own							
	% No	% Yes	Cattle	Aver./ Owner	Camel	Aver./ Owner	Sheep	Aver./ Owner	Goats	Aver. Owner
Farmers	16	84	1,026	2.7	103	0.27	1,456	4.1	2,844	7.5
Agric. Workers	40	60	162	1.4	19	0.16	205	1.7	622	5.3
Shop Owners	11	89	112	3.3	42	1.23	230	6.8	375	11
Shepherds	-	100	-	-	41	6.83	167	27.8	84	14
Others	23	77	165	2.1	6	0.08	126	1.6	453	5.8
Total:	21	79	1,465	2.4	211	0.34	2,184	3.5	4,378	7.1

dominant category, followed by sheep, cattle and camels respectively. Except for the case of shepherds it seems there was a positive correlation between animal ownership and land ownership.

As mentioned before, these figures were much underestimated as villagers under-reported their livestock for fear of taxes. In addition, in the survey year there was a widespread belief that tenancies on the new Rahad Scheme would not be distributed to nomads, and therefore farmers were afraid to be excluded.

Out of 559 households who said they had contributed to seasonal agricultural operations outside their farms as seasonal workers, 345 were animal owners. When asked what they generally did with their animals when they migrated for seasonal work, one-third of them said they migrated with their animals, 1 per cent said they sold their animals, and the remainder (66%) said they left them with either part of their family or relatives. Some of the group also said they left them with shepherds and paid them at a rate of LS 0.05 for goats and LS 0.1 for sheep per month. Further, some of the migrants said that one of their reasons for migrating was the availability of better water supplies and pasture in areas of modern agriculture. Usually migrants sent their animals a week before they moved to seasonal work, and

followed later with their families.

8.4 Long-term Migration

8.4.1. Extent of Long-term Migration:

For the purpose of the survey long-term migration was defined as migration outside the village for a period of more than six months. Students were excluded from this definition as they do not migrate seeking gainful work. Household heads were asked about members of their households away from home for periods of more than six months.

In this context, the household complex and cultural considerations were found to be important in the decision to leave agriculture.* Within the household in rural areas, work is mostly done collectively. Every member of the family contributes in farm work and they all share the output.

In this kind of situation the decision to migrate is taken not by the individual but the household. In instances where traditional arrangements can no longer provide acceptable forms of activities for all members of the family, the family may then act as a unit in finding new roles for its members. In the case of a rural family not finding productive employment for all

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* Galal El Din, M.E. "The Human Factor in the Rahad Project Area .... op. cit.

its members in traditional activities, the family as a unit or its head selects one or two members of the family to seek employment outside traditional areas. The family continues to support these members until they find employment or become convinced that there is no hope and return home. If employment is found by those who leave, earnings are shared with those who remain in the traditional activities. In this way risks associated with seeking new employment are shared between all members of the family. This procedure permits a more satisfactory response to employment and income difficulties than would be possible on an individual basis.

It is likely that in this kind of situation, the decision-making process is significantly different from that characteristic of an individual acting on his own. It is also likely that incentives that act on a family unit are different from those that act on an individual.

Data collected from rural areas indicate that migration of farm labour takes place mainly for short periods. It seems that areas of high seasonal migration have low permenent migration. Only 10 per cent of households covered by the survey had, in fact, members absent for more than six months. Moreover, while the Sudan had been experiencing heavy emigration for the

last two or three years, strangely none of the households covered reported this kind of migration. It seems that emigration is mainly an urban phenomena.

Lack of funds for transportation to job opportunities and to support the individual or family over a short period of job-seeking or through an extended period of unemployment has probably kept many people from leaving agriculture. There are also others who lack knowledge in the sense of ignorance of economic opportunities elsewhere in the country or outside the country. Another factor restricting long-term mobility of labour is the fact that rural people probably place a high subjective discount on alternative returns off the farm because of limited experiences "away from home". The fear of transition from farm to non-farm living, or even rejection of non-farm modes of living, may reinforce the strong family and community ties which hold people to farms and farming communities.

8.4.2. Destination Areas, Incomes and Duration of Residence:

Those who reported long-term migration were further asked about destination areas. Khartoum constituted the destination for 39 per cent of migrants, other towns 47 per cent, and agriculture and other rural areas 14 per cent. As for the nature of the jobs performed by these

workers, 17 per cent of them were in permanent jobs in the government sector, 7 per cent were in permanent jobs in the private sector, and 15 per cent in temporary jobs. Most jobs were reported in the informal sector as petty traders (10%) tailors (24%) and other unspecified jobs (22%). Most rural migrants are attracted towards the informal sector, mainly because of the shortage of wage-earning employment in the modern public and private sectors. This is the case in spite of the fact that wages, though higher in this sector than in agriculture, are much lower than the modern sector wages. In other words villagers, faced with the difficulty of supporting themselves for long periods seeking permanent jobs, give more consideration to the availability of jobs rather than rates of remuneration. The informal sector, therefore, provides incomes at a level between those of agricultural workers and those of employees in the public sector who receive at least the official minimum wages.

Incomes of members of households in permanent migration are shown in table 8.6 overleaf. Although data about incomes were collected from secondary sources, they were likely to be more accurate as these sources had no motives to hide part of these incomes. As can be seen from the table, nearly one-third of the migrants received monthly incomes less than LS 15, a value less

than the minimum wage level in the modern urban sector.* This was not unexpected since a substantial number of them were employed in the informal sector. 50 per cent of the migrants earned monthly incomes between LS 15 and LS 35. Only 17 per cent were reported to be earning incomes more than LS 35 a month.

Table 8.6 Monthly Income for Long-term Migrants

Income Class	Number of Persons	% of Total
0 - 10	8	6
10 - 15	33	27
15 - 25	27	22
25 - 35	35	28
35 +	21	17
All Classes	124	100

However, the reason for the majority of migrants earning low incomes may be attributed also to the fact that they were inexperienced and unskilled. When asked about their period of absence, the households answered as shown in the table overleaf.

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* At the time of the survey the Sudanese pounds (LS) was worth US $ 2.87.

Table 8.7 Duration of Residence for Long-term Migrants

Period of Absence	Total Number of Persons	% of Total
Less than 1 year	28	22
" " 2 years	23	18
" " 3 "	20	16
" " 4 "	5	5
4 to 7 years	24	19
7 to 10 "	11	9
10 +	13	11
Total:	124	100

Around 55 per cent of migrants were absent for a period less than three years, while only 11 per cent were away from home for more than 10 years. One-fifth of them were absent for one year and another 18 per cent for two years.

As for the characteristics of migrants, they were found to be young and better educated than the remaining population in the villages covered. Therefore, they were expected to have less family obligations and hence more incentive and ability to stay unemployed for some time searching for employment.

8.4.3. Causes of Migration:

Although no question was inserted in the questionnaire form about causes of long-term migration, tentative

interviews were held with influential and knowledgeable persons in addition to young persons in villages covered by the survey. Moreover, observations about the decision-taking process threw some light on reasons for migration.

From an economic point of view, family authority is exercised through a system of ownership that discriminates against the young. The land generally belongs to the older members of the family. It is difficult to own or manage a plot of land before reaching middle age, and the young usually have no say in the family's affairs. This is usually the case in spite of the fact that they do the hardest physical work. Therefore, dissatisfaction and the desire to migrate are most marked among the young to whom family or social constraints seem least justifiable and tolerable. The desire to escape the ties of family or tribe is an important motivation to leave rural areas.

Thus, the rural way of life, and the strong family and community ties, though holding people to farms and farming communities, act as a push factor to the young. In particular, the disutility of agricultural work causes many young persons to migrate. Compared with the bright lights of the city, the countryside has

little to offer.* In fact those who migrate on these grounds are influenced by push and pull factors simultaneously. They seek to get away from primitive surroundings where there is no electricity, no clean water and where there are few or no medical services.

However, not all the migrants were motivated by the push factors of rural life. In many cases the decision to break away from the home environment was due to the desire to find a better job in an urban area. Inter-regional differences in income and particularly in cash incomes can explain part of the migratory movements in rural areas. Whereas the pull factors are both social and economic, the push factors are often, though not exclusively, social. They include the desire for independence or social standing, the rejection of certain way of life and so on.

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* See Galal El Din, M.E. "The factors influencing migration to the three towns of the Sudan." in Sudan Journal of Economic and Social Studies, Summer 1974.

CHAPTER 9

Seasonal Migration

9.1 Introduction

In an attempt to find out whether Sudanese agriculture faces labour shortages we have examined the supply of and demand for labour in agriculture. Our findings showed that, although significant shortages exist in certain regions of modern agriculture at certain times, it would seem that in the context of the whole country this was not so. We have suggested various explanations for this shortage.

This chapter attempts to ascertain empirically, the validity of the hypothesis that traditional labour markets are capable of supplying much more labour to modern agriculture provided seasonal migration is made more attractive. In particular we intend to examine the response of seasonal migration to increases in migrants' wages. Earnings in different regions for different seasonal operations were determined. To place earnings in agriculture in context, they were compared with earnings in other sectors and with that of other countries in Africa.

A comparison of average household income in

traditional agriculture with that of the modern sector revealed the existence of a wide gap. Therefore, one implication of our study is that more serious attempts must be made towards increasing wages in agriculture. Such a course would benefit the migrants from traditional agriculture and would lead to more equitable distribution of income. On the other hand, it would also encourage more people to participate in seasonal migration.

9.2 Extent of Seasonal Migration

The population of the Sudan is mobile to an extra-ordinary degree. According to the ILO estimates, over a million men and women move every year in search of income opportunities. In addition there are a large number of nomads who move with their animals in the south - north direction. Altogether about a quarter of the adult population migrate every year in search of work from one rural area to another or from rural to urban areas.* The agricultural labour force, which comprises more than two-thirds of the total, is substantially underemployed at certain seasons and large numbers of people must travel great distances in order to raise their incomes above subsistence level.

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* Just Faaland "Growth employment and equity." - Lessons of the employment strategy mission to the Sudan. International Labour Review, Vol. 114, No. 1 July - August 1976, PP. 1 - 10.

The households covered by the survey were asked if they or any member of their households had ever participated in any seasonal work outside their villages. Out of the 800 households, 559 or 70 per cent of the total reported they did. However, as can be seen from table 9.1, the extent of migration differs widely between the villages covered. While nearly all households in the five villages of Gezira and in Suki reported seasonal migration, the averages for the villages of Northern Rahad, Southern Rahad and Kordofan were 57 per cent, 60 per cent and 55 per cent respectively. The villages of the Gezira region and Suki were located in areas famous for cotton cultivation, and the people of these villages do not need to travel long distances to find agricultural work, while people from other villages and especially from the village of Umardo and the two villages of Kordofan had to travel long distances to find seasonal employment. Therefore, seasonal migration seems to be partly a function of of distances travelled, and the nearer the village of residence to areas of seasonal work the more people will be willing to migrate. More precisely, it could be possible to generalise that the intensity of migration varies inversely as the distance travelled. This is probably more true of short-term migration than long-term migration, and is correlated with the cost of travel. Another reason might be the fact that people

Table 9.1 Households contributed in Seasonal Migration

Region	Village	Households covered	Have you or any member of your family ever contributed in seasonal work.			
			those answered yes	%	those answered no	%
Gezira	Wed Solfab	45	44	98	1	2
	Arbagy	33	33	100	-	-
	El Hassahisa	20	20	100	-	-
	El La'otha	22	20	98	2	9
	Hilat Hamad	24	24	100	-	-
		144	141	98	3	2
Northern Rahad	Ain El Liwaiga	53	20	38	33	62
	El Fatirab	16	14	87	2	3
	El Timait	16	12	75	4	25
	El Babanosa	23	11	48	12	52
	Wed El Obeid North	105	69	66	36	34
	El Digairab	17	6	35	11	65
		230	132	57	98	43
Southern Rahad	Wed El Obeid South	32	15	47	17	53
	Arabas	20	11	55	9	45
	Abu Digin	39	26	67	13	33
	El Sharafa	35	23	67	12	33
		126	75	60	51	40
El Dali	Um Arda	49	49	100	-	-
Kordofan	El Ogaila	88	35	40	53	60
	Abu Sid	112	75	67	37	33
		200	110	55	90	45
El Suki	Suki	51	51	100	-	-
All Regions	All Villages	800	559	70	241	30

who need to travel long distances have to leave their animals with either some members of their household or relatives to look after. As mentioned before, nearly two-thirds of the migrants leave their livestock behind.

The extent of migration also varies with the occupational status of migrants. While all agricultural workers reported seasonal migration, a little above 60 per cent of farmers and people 'unclassified by occupational status' reported seasonal migration. The lowest rate was reported by shepherds (33%), followed by shop owners. As we have seen before, agricultural workers as a group owned the fewest animals while the shepherds who reported the lowest rate of seasonal migration owned the most animals.

Seasonal migration seems to be selective with regards to sex in some areas, and age and marital status in general. The unmarried heads of households, who were by virtue of that fact the younger, reported the highest rate of migration (93%). This was expected as they generally did not have many family obligations and also were expected to have the physical ability and the desire to work hard in seasonal jobs and save some money to cover the cost of marriage later. "Widows", who were expected to have fewer family obligations, had 76 per cent seasonal migration, followed by the "married"

group with 67 per cent and the "divorced" with 57 per cent.

The sex selectivity of seasonal migration could be related to customs and traditions in certain areas and to the nature of some agricultural operations. The sex selectivity with regard to customs and traditions could be seen from a comparison of migratory habits in the villages of Southern Rahad. The first three villages in this region were inhabited by people of Fellata* origin, while the fourth, "El Sharafa", was inhabited by Arabs. Fortunately, at the time of the survey two social anthropologists** had been studying these communities for an extended period and had diligently recorded the economic activities of these tribes. While the results of their study were not prepared at the time of the survey, the author's tentative discussions with them disclosed many useful facts about the effect of customs and traditions on seasonal migration in particular and on the economic life of these tribes in general.

The Fellata villages believed that women should not work outside their homes. Even within their villages they

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* A collective term referring to all the diverse groups originating from West and Central Africa.

** G. Obrign and S. El Shazali - Department of Anthropology University of Khartoum - December 1976.

depended on male members of their households to work on farms. On the other hand, the people of El Sharafa, being an Arab village, had a high participation rate for females. To compensate for the work performed by women in other Arab villages, the people of Fellata villages married at early ages and usually more than once to have more male children to help them in farm work.

The migratory trends differed widely between these two types of tribes. While the Arab villagers migrated as complete households, only the male and active members migrated in the Fellata villages. Thus while on average three members per household migrated to seasonal work in 1975 from Fellata villages, the corresponding number for the villages of Kordofan was 8 persons/household, implying that the whole household migrated in the latter case. Out of those who migrated from Fellata villages in the same year, none were female.

Seasonal migration in Fellata villages was mainly to dura cutting and charcoal burning, which are generally difficult operations but pay better than cotton picking. The majority of Arab villages in the area migrate to cotton picking. When the people of Fellata villages were asked why they do not go to cotton picking, they said the main reason is the fact that the contractors

and farmers of Gezira or Suki want them to migrate with their families, which contradicts their traditions.

9.3. Regions of Migration and the Types of Work perfomed by the Migrants

In question (12) of the questionnaire form, the households reporting seasonal migration were asked to identify the areas they had migrated to and the nature of the jobs they had performed since 1964. Tables 9.2 and 9.3 show the regions of migration and the nature of work performed by migrants in each area in 1975. These two tables are better analysed together as they are inter-related.

Of those who answered the question, nearly all the migrants in the Gezira villages and the first four Northern Rahad villages went to Gezira and regions of agricultural reform schemes. The rest of the villages, except the three Fellata villages of Southern Rahad, had their people migrating to other regions in addition to Gezira and agricultural reform. Many of them migrated to areas of mechanized rainfed agriculture, charcoal areas and towns. The Fellata villages did not report any migration to Gezira for the reasons already stated in the previous section. With regard to the kind of work performed, the vast majority of migrants from

Table 9.2 : PERCENTAGE DISTRIBUTION OF MIGRANTS ACCORDING TO DIFFERENT REGIONS OF MIGRATION

Region	Village	Number of migrants in each village	Regions of Seasonal Migration % All regions	Gezira	Agric. Reform	Mechanized rain-fed	Towns	Charcoal areas	Other Regions
Gezira	Wed Solfab	235	100	82	8				
"	Arbagy	166	100	94	6				
"	Hassahisa	132	100	100					
"	El Laita	106	100	100					
"	Hilat Hamad	121	100						
		760	100	94	4				
Northern	Ain El Liwaiza	15	100	80	20				
Rahab	El Fatirab	56	100	89	11				
"	El Timait	49	100	61	39				
"	El Babanosa	11	100	90	10				
"	Wed El Obeid N.	324	100	64		13	17	3	3
"	El Digairab	25	100	24	20			48	8
		480	100	65	7	9	12	4	3
Southern Rahad	Wed El Obeid S.	52	100		10	10	40	10	30
"	Arabas	30	100		23	33	30		14
"	Abu Digin	167	100		19	19	36	10	16
"	El Sarafa	86	100	10	50	29	5	5	1
		335	100	3	26	21	28	7	15
El Dali	Um Arda	154	100	0.5	32	43	13	11	0.5
Kordofan	El Ogaila	247	100	5	78	9	8		
	Abu Sid	664	100	27	7	11	45		10
		911	100	21	26	11	35		7
El Suki	El Suki	279	100	9	44	33			14
All Regs.	All Villages %		100	43	19	13	17	2	6
	Numbers	2919		1267	561	369	491	64	166

Table 9.3 : PERCENTAGE DISTRIBUTION OF MIGRANTS ACCORDING TO DIFFERENT SEASONAL JOB OPERATIONS IN 1975

Region	Village	Total Migrants		Seasonal Operations						
		Number	%	Cotton picking	Dura cutting	Bildat cult.	Porter	Petty Trading	Charcoal Burning	Others
Gezira	Wed Solfab	222	100	79	17			7		4
"	Arbagy	175	100	32	10					8
"	Hassahisa	133	100	86	1	4				9
"	El Laota	121	100	92	1	7				
"	Hilat Hamad	121	100	80	4	16				
		772	100	83	8	4				5
Northern	Ain El Liwaiza	45	100	38	7		2		40	13
Rahab	El Fatirab	75	100	89	4		3		1	3
"	El Timait	67	100	93	3				1	3
"	El Babanosa	26	100	23	15		4	19	4	35
"	Wed El Obeid N.	322	100	53	8	2		23	9	5
"	El Digairab	25	100	45	8		12		32	
		560	100	60	3	1	1	14	10	6
Southern	Wed El Obeid S.	52	100	2	12			12	15	59
Rahad	Arabas	30	100	3	54			3		40
"	Abu Digin	167	100	4	33		17	19	17	10
"	El Sharafa	83	100	59	14				12	5
		332	100	20	27		8	11	14	19
El Dali	Um Arda	159	100	5	74	2	1		6	12
Kordofan	El Ogailas	241	100	91			3			6
"	Abu Sid	664	100	14	8	2		2	7	67
		905	100	34	6	1	1	2	5	51
El Suki	El Suki	279	100	62	10	5				23
All Regs.	All villages %		100	51	13	2	2	4	6	22
	numbers	3007		1532	391	71	45	133	164	671

the villages of Gezira reported cotton picking, and only about 15 per cent dura cutting, bildat cultivation and other unspecified jobs. The majority of migrants from the villages of Northern Rahad, El Sharafa in Southern Rahad, El Ogaila in Kordofan and El Suki reported cotton picking as their main seasonal operation. Although the Fellata villages do not migrate to Gezira, a few of them worked in cotton picking on agricultural reform cotton schemes or in El Suki. Wad El Obeid North in Northern Rahad and Abu Digin in Southern Rahad, with their semi-urban features had the majority of those engaged in seasonal trading. Moreover, the majority of those working as porters were in Abu Digin. While dura cutting had migrants from nearly all the villages covered by the survey, charcoal burning was performed by migrants from Abu Sid, Um Arda and the villages of Northern and Southern Rahad.

As can be seen also from the two tables, seasonal migration, though mainly rural-rural migration, is not wholly for agricultural operations. Other occupations, like charcoal burning, petty trading, casual work and other jobs, constitute a large part of seasonal jobs. Although distance travelled is an important factor in the decision to migrate, other economic and non-economic factors are important in the choice of area of migration

and operations done. In 1975, out of 410 households reporting seasonal migration 40 per cent of them migrated to Gezira and another 19 per cent and 16 per cent to agricultural reform and mechanized rainfed areas respectively. These three areas, though predominantly agricultural in nature, had also many non-agricultural jobs. During 1975, 15 per cent of households migrated to towns while charcoal areas and other areas received 3 per cent and 7 per cent respectively.

With regard to the head of household's seasonal operations, cotton picking alone occupied a little less than half of them. Another 15 per cent and 3 per cent of them were engaged in dura cutting and bildat cultivation respectively. The remainder were distributed among different non-agricultural operations. Altogether about one-third of total households were engaged in seasonal non-agricultural activities.

However, when we consider total migrants (heads of households and other members) the situation differs slightly. Although three-quarters of the total migrants were in Gezira, agricultural reform and mechanized rainfed areas in 1975, only two-thirds of total migrants were engaged in agricultural activities. The distribution of migrants between agricultural and non-agricultural activities varied widely among regions. While

the villages in Gezira had more than 90 per cent of their people in seasonal agricultural activities in 1975 and the villages of Northern Rahad about 70 per cent, less than half of the migrants from Kordofan and Southern Rahad were engaged in agricultural jobs in the same year. Gezira was the main area to receive migrants, and cotton picking was the main operation in that year. As can be seen from table 9.4 the majority of migrants to agricultural reform areas were engaged in cotton picking, while only 26 per cent of those to Gezira were in cotton picking.

The fact that the highest single group of operations in Gezira was "other unclassified jobs" is explained by the availability of more diversified jobs in Gezira.

From the occupational distribution of households and the seasonal work they perform outside their villages a general conclusion can be reached. Despite the Sudan's heavy dependence on agriculture and animal husbandry, rural manpower is not so exclusively agricultural as might be thought. Although the primary sector engaged more than 70 per cent of the economically active in 1973, tertiary activities occupy considerable numbers of rural population as a secondary occupation. This has important policy implications:

Table 9.4 Seasonal Operations and Regions of Migration in 1975

Region of Seasonal Migration	Total Migrants		Percentage of Migrants in each seasonal operation						
	Number	%	Cotton Picking	Dura Cutting	Bildat cultiv-ation	Porter-ing	Petty Trad-ing	Char-coal burning	Other Jobs
Gezira	1,267	100	26	17	12	1	2	3	39
Agricultural Reform	561	100	70	19	3	5			3
Mechanized Rainfed	369	100	26	42	2	2	6	4	18
Towns	491	100				4	19	10	67
Coal Areas	64	100				10		90	
Other Regions	166	100	7	12			4	20	57

First, any attempt to conduct a population census or large-scale survey dealing with employment problems should include a question about the "subsidiary occupations" of respondents.

Secondly, within limits the rural areas constitute a reservoir of non-primary manpower which might be used for development purposes in rural areas. Thus, it is not necessary to think that development of traditional agriculture is the only way to tackle rural employment problems in general and income inequalities in particular. Rural works projects which concentrate employment during the slack season could better be developed to alleviate rural underemployment. Such projects would help in developing rural infra-structure - roads, housing, schools and health centres - which would improve rural life and increase labour productivity. Adjustment of work periods with slack seasons in agriculture would make possible the provision of labour at a low opportunity cost. Moreover, seasonal migration which takes place at slack seasons has to be encouraged. It helps to provide employment for the seasonally unemployed in traditional agriculture and also can be regarded as a source of income for the rural poor.

9.4 Duration of Residence

The period that migrant workers stay away from their

homes varies considerably among the households covered by the survey. The time spent in seasonal work in modern agriculture is determined by many factors among which the nature of the job performed is the most important. The duration of seasonal operations differs among crops grown in different regions. It is also an important factor in the decision of households to migrate to different areas, as incomes earned are partly determined by the duration of the agricultural operation.

The migrant population may be considered to consist of the following groups. First there are the Arab villages of the east bank of the Blue Nile river and those along the Rahad area, who may have established certain links with particular tenants and, therefore, go back to the same employer year after year. This group is the only one to conform to the traditional picture of seasonal cotton-pickers who return to their home areas as soon as the cotton is picked. As can be seen from table 9.5 the people of Northern Rahad villages and El Sharafa in Southern Rahad, who are considered to represent this group, all reported a period of absence from home from one to four months. As we know the demand for cotton labour is concentrated in the period from January to April in the Gezira Scheme.

A second group consists of a small minority of

families who are on the point of settling permanently because they have secured a permanent job as share-croppers with some tenants in the Gezira. These are mainly migrants from Western Sudan or even of foreign origin. These migrants formed their own villages at the outskirts of the tenants' villages and started to work as share croppers for groundnuts and dura crops with Gezira tenants, and they offered cheap labour at the cotton-picking season. The villages covered in Gezira represent this group. Their period of seasonal migration extends much longer than the cotton-picking season.

Finally, there is a third group of males, who are maximising their earnings over a short period and are therefore highly mobile. They drift around during most of the year. They are represented in the table by the villages of Fellata, El Dali and Kordofan. They may participate in dura cutting in mechanized rainfed areas, move to the groundnuts harvest in December and January, work in cotton-picking or in Gezira cotton ginneries, and wait to pull out and clean debris for two months after the cotton harvest.*

However, as can be seen from the table, a considerable number of households covered by the survey reported their

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* A significant consequence of this is that rural families in many cases may be left in the full care of only one adult, the wife or mother of the migrant. This exposes the inadequacy of current definitions of labourforce, which largely excludes women.

Table 9.5 : DURATION OF SEASONAL MIGRATION IN DIFFERENT VILLAGES IN 1975

Region	Village	Total Migrants		Duration of migration (months)								
		Total	%	1	2	3	4	5	6	7	8	9+
Gezira	Wed Solfab	132	100	4	4	31	19	4	2		1	35
"	Arbagy	60	100	8	12	30	7	12	3		1	27
"	Hassahisa	80	100		3	24	23	24	18	4		8
"	El Laota	50	100		22	32	10	36				
"	Hilat Hamad	88	100		48		19	26				7
Northern	Ain El Liwaiza	44	100	32	30	11	23		2			2
Rahab	El Fatirab	56	100	5	13	38	44					
"	El Timait	47	100	6	6	79	15					
"	El Babanosa	21	100	48	29	19	4					
"	Wed El Obeid N.	306	100	14	14	37	22	2	6	1		4
"	El Digairab	25	100	48	24	28						
Southern	Wed El Obeid S.	49	100	41	10	4	6	12	24			3
Rahab	Arabas	42	100	52	12	14	7	10	5			
"	Abu Digin	139	100	22	35	10	1	11	1	3		19
"	Al Sharafa	80	100	10	16	54	20					
El Dali	Um Arda	149	100	17	30	18	6	7	3	6	23	
Kordofan	El Ogaila	225	100			7	57	36				
"	Abu Sid	655	100		1	3	40	23	19	1		13
El Suki	El Suki	198	100	11	12	56	8				2	11
All Regs.	All Villages %		100	9	12	21	25	14	8	1	1	19
	numbers	2436		225	291	519	606	343	180	22	23	227

duration of seasonal migration as one or two months. It seems at first sight irrational behaviour as most of these households are idle for a period of five to six months. Many factors seem to be important in determining the duration of migration.

Towards the beginning and end of picking, the worker has to go over a bigger area so as to collect a given amount of cotton. Therefore, it becomes more tedious and time-consuming for the worker, who is paid on a piece-work basis. As the rate of payment is fixed for the whole picking period it becomes difficult to earn more in these periods and many of the workers prefer to attend for short periods to earn the maximum possible, and try to avoid these two periods. The earnings of cotton pickers specially becomedifficult at the end of the season when the quality of cotton becomes inferior. The tenant becomes reluctant to increase the piece rate towards the end of cotton picking since the marginal cost of picking may exceed the marginal benefit. On the other hand, at a certain stage the worker might find the marginal cost of picking exceeds the marginal benefit measured by his earnings. Therefore he may prefer to go home and find more utility in staying idle. However, there might be a divergency between social and private benefits and costs. At the time when the marginal cost is equal to marginal revenue

to the farmer, it is likely that the marginal social benefits far exceed the marginal cost*. To avoid crop losses due to the early departure of pickers it would be more advisable to have different rates for different stages of picking.

Another characteristic of many migrants affecting their duration of stay is that they come to seasonal work with a predetermined earnings target in mind. These migrants determine in advance how much money they have to save for their family's needs, and might revise their targets in the course of time depending on how much they earn. This attitude also results in considerable crop losses. For example, in the 1967/68 season it has been estimated that the early departure of migrants resulted in a 20 per cent drop in yields.**

Finally an important factor in determining the duration of seasonal migration may be the push factors in the sending areas. For example, in a bad crop year caused by insufficient rainfall there may be strong tendency towards early migration and late return to supplement low incomes in the home areas.

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*Abdel Razig Bashir Mohamed, "Agricultural Manpower and Economic Development in the Sudan." Unpublished M.Sc. thesis - University of Khartoum - 1970.

**Sudan Gezira Board, Development and Planning Unit, The annual crop report 1968.

On the other hand, in a good crop year many are less inclined to migrate and those who migrate may start to move after harvesting their own crops and attending local ceremonies.

9.5 Earnings

There are various different systems of wage payment under which the agricultural worker's earnings are related directly to some measurement of the work done either by himself, by his family or by the group or working unit to which he belongs. Such systems, known as payment by result, differ for different crops in different regions. Under the straight piece-system which may be applied to individuals as in the case of cotton picking, the worker is paid at a specified rate per unit of output measured in terms of "Guffa".* In some cases it is impossible to apply an individual system where several workers are required to perform a single operation as in the case of dura cutting. In this case the earnings of the group are determined first by measuring the amount of production which passes inspection by a representative of the farmer. The total earnings for the group are then known and if all the members of the group are of similar ages and physical fitness these earnings are usually divided among them equally.

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* Load of cotton weighing 36 lb.

Frequently, however, the members of the group are not of equal skill. In these cases the total earning of the group may be divided among the members according to specified percentages. Where, for example, the group consists of some skilled and some unskilled young workers or 'helpers' the share of the latter is usually lower than those of the former group.

The chief advantage of payment by result in both cotton and dura areas is that, when properly applied, it can generally be relied upon to yield increased output, lower costs of production and higher earnings for the workers. Less supervision is needed from the farmer to keep output up to a reasonable level, while the worker will have more incentives to work hard and earn more. On the other hand, such a system may have an important disadvantage: there is a tendency for the quality of the products to deteriorate unless steps are taken to ensure the achievement of good quality through a system of inspection. For example, in cotton picking some workers rush to cover big areas to pick as much as possible. However, in so doing they leave part of the cotton unpicked which goes to waste causing big losses.

Disparities in remuneration are substantial, depending upon the size of farm, the nature of the work

performed or the type of crop, or personal factors such as nationality, sex or age, even though the principle that there would be equal pay for equal work is recognised under the country's law. Benefits in kind are still a widespread practice in the country's agriculture. These benefits, which take the form of food supplies, free primitive housing and sometimes free transport costs, differ widely between regions. In both cotton and dura areas the accommodation of agricultural workers is too often built of materials which do not afford adequate protection against the harsh savana or tropical climates. Sometimes the dwellings leak in cold weather and have no ventilation or lighting. They mainly consist of small sheds made of grass, and the whole family have to live in a single room. Agricultural workers' food is just as unsatisfactory as their accommodation. They are usually badly fed and their diet is both poor and monotonous.

For the households covered in the survey which had taken part in seasonal work outside their farm in 1975 a question was asked about their daily earnings whether in cash or in kind. Table 9.6 overleaf shows earnings in different regions and for different crops.

Information on cash earnings was easy to remember for households, unlike earning in kind which is rather scanty. The reason is that the migrants are not paid in kind on a specified daily basis but are provided

Table 9.6 Daily Earnings in Different Regions for Different Seasonal Operations in 1975

Region	No. of Households	Total Cash Earnings/ Day (LS 0.00)	Daily Household earnings in cash (LS 0.00)
Gezira	166	70,321	0.42
Agric. Reform	76	29,205	0.38
Mech. Rainfed	66	28,989	0.44
Towns	60	33,260	0.55
Charcoal	13	6,550	0.50
Others	27	11,529	0.43
Seasonal Operation			
Cotton Picking	201	68,790	0.34
Dura Cutting	62	28,220	0.45
Bildat Cultivation	11	9,725	0.88
Porters	9	3,050	0.34
Petty Trading	20	24,080	0.120
Charcoal Burning	29	16,881	0.58
Other Operations	78	30,529	0.39

with food whenever they need it. In such situations it is difficult for the illiterate householders to convert the value into cash then estimate the daily payments in cash.

In the absence of any previous attempts to measure rural wages in different regions for different operations our survey is considered a pilot one. As can be seen from the table, earning differentials are more noticeable among seasonal operations rather than among regions. In 1975 there were wide disparities in the remuneration

of agricultural workers, mainly attributable to the nature of the work performed and the place of employment. Among the seasonal operations cotton picking is one of the lowest paid*, but it is important to consider that in cotton picking the whole family can participate in addition to the provision of some income in kind. The dura cutting operation, which is paid higher than cotton picking, is a more difficult task and only males can do the job. Petty trading, which is paid three and a half times higher than cotton picking, is practised by relatively young and educated households. The job needs some capital to start with, and working hours are much longer than agricultural operations.

It is sometimes asserted that agricultural workers are better off than workers in the informal sector in the towns because in addition to their cash earnings they obtain certain "free" benefits in kind representing a far from negligible supplement to their earnings. However, the value of these benefits should not be overestimated because they often amount to no more than the provision of extremely primitive accommodation and poor food which in most cases does not meet minimum subsistence needs. Due to the persistent increase in the prices of these benefits in kind there is a tendency among farmers in

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* According to officials of the Gezira Board, a picker working eight hours a day could earn a minimum of 17.6 piastres to a maximum of 51.5 piastres, given the piece rate of 10 piastres per guffa.

mechanized rainfed agriculture to abolish them. In such cases it is doubtful whether abolition of these benefits would be fully compensated for by the raising of cash wages and it is questionable whether it is really in the workers' interest to abandon the mixed remuneration methods. However, it is argueable that payment of part of the workers' wages in kind is not necessarily a bad thing. On the contrary, when the workers have been recruited from such a distant area as Kordofan and Darfur Provinces the provision of board and lodging may be indispensable. Moreover, in times of inflation payment in kind may be an effective device for protecting the agricultural worker's income.

It seems that earnings vary significantly over the months of the year over different operations on particular crops and over different areas. Wages for seasonal labour in mechanized farming are somewhat higher than those for cotton-picking. Table 9.7 throws some light on earnings in various villages covered by the survey.

On average a migrant works for 5 hours a day, earns 38.3 piastres in cash and stays away from home for 2.1 months.* At a monthly rate of LS 9.6 a single migrant may find seasonal migration discouraging. However,

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* According to a 1974 random study in the Gezira Scheme, the daily cash earning of hired workers was estimated to be 35.3 piastres. See Mann, W.S. "Labour, Employment and the productivity of the tenant farmers in Gezira mechanized farming area." University of Khartoum, Faculty of Economics and Social Studies, occasional papers, 1975.

within the average figures for working hours, length of stay and earnings in different regions there are considerable individual variations. The agricultural workers themselves cover a spectrum of types from the permanently landless labourer wholly dependent upon his earnings for the subsistence of himself and his family, to the self-employed family farmer who takes casual work in slack seasons as a way of increasing his cash income. The first group is represented in the survey by the villages of Gezira while the second is represented by all other villages.

Although there are exceptions, some generalisations can be made about table 9.7.

1. The villages of Gezira which were established illegally are the lowest paid since they are discriminated against by the farmers.
2. The migrants who migrate with their families work less than the average working hours, stay away from home less than the average and earn less than the average.
3. Migrants working for long hours per day are receiving higher incomes than the others and are staying away from their homes for longer time.

However, it is not clear whether workers in agriculture are paid less because they work less or they are working less hours because they think it is not worth

Table 9.7 : DAILY WORKING HOURS, ABSENT PERIODS AND CASH EARNINGS IN 1975

Region	Village	Number of migrants			Daily working hours		Absent time (months)		Cash earnings/day	
		Male	Female	Total	Total	Average	Total	Average	Total	Average
Gezira	Wed Solfab	231	155	392	1779	4.5	707	1.8	11935	30.4
"	Arbagy	173	105	278	1321	4.7	288	1.0	10515	37.8
"	Hassihisa	155	89	244	1066	4.4	287	1.6	4815	19.7
"	El Laota	75	119	194	837	4.3	180	1.0	5005	25.8
"	Hilat Hamad	83	74	157	782	5.0	321	2.1	7528	47.9
Northern	Ain Al Liwaiza	38	8	46	452	9.8	110	2.4	4030	87.6
Rahad	El Fatirab	94	88	182	566	3.1	180	1.0	3290	18.0
"	El Timait	64	52	116	406	3.5	145	1.3	2061	18.0
"	El Babanosa	26	10	36	201	5.6	38	1.0	2900	80.5
"	Wed El Obeid N.	368	130	498	2278	4.6	1002	2.0	32792	65.8
"	El Digairab	27		27	156	5.8	45	1.7	1840	68.1
Southern	Wed El Obeid S.	52		52	491	9.4	159	3.0	7156	137.0
Rahad	Arabas	30		30	220	7.3	32	1.0	3700	123.0
"	Abu Digin	171		171	1460	8.5	507	3.0	18730	109.5
"	El Sharafa	109	67	176	636	3.6	227	1.6	7855	44.6
El Dali	Um Arda	159		159	1193	7.5	558	3.4	13929	87.6
Kordofan	El Ogaila	313	376	689	1582	2.3	965	1.4	9795	14.2
"	Abu Sid	845	122	967	6316	6.5	3340	3.4	22064	22.8
El Suki	El Suki	265	110	375	2366	6.3	728	1.9	13710	36.5
	All villages	3284	1505	4799	24108	5.0	9919	2.1	183650	38.3

making more effort. There seem to be certain factors that are affecting labour performance in agriculture. First, the level of labour productivity seems to be a function of the physical environment of the locality and health conditions of the area where the labour works. In such a hot temperature as that of the Central Sudan the productivity of labour and working hours are highly affected. Secondly, malnutrition and chronic debilitating diseases are responsible for lowering the productivity of labour. The low standard of health of the rural population associated with an unbalanced diet results in poor physique. Finally, the wage level and incentives are important factors affecting productivity of labour. Our discussions with many agricultural workers revealed that wages were very low and many of them believed that it was not worth it to work hard for eight hours a day to pick three "guffas" for only 10 to 15 piastres per "guffa".

9.6 Agricultural Wages and Non-agricultural wages

To place earnings in agriculture in context, we have to compare them with the minimum wage of LS 16.50 per month in the urbanized modern sector (63 piastres per day for 26 working days per month). This is almost 1.7 times higher than the average wages in agriculture. According to a survey by the Labour Department, average earnings (of wage earners as well as salaried employees) rose from LS 18 per month in enterprises with 5 to 9 employed

persons to LS 34 in enterprises with 40 to 49 employed persons, and fell again to LS 26 in enterprises with 100 or more persons in 1970/71. If we consider wage earners only, average earnings rose from LS 13.5 for the small firms to LS 21 for the large ones.* The Minimum Wage Order of 1974 fixed the minimum wage in public sector enterprises with 10 workers and more at LS 16.50 per month, and allowed private firms until 1976 to catch up to that minimum wage in three annual increments. Therefore, we assume the average wage in the modern urban sector in 1975 to be LS 18.75 (the average of the minimum and the average paid in large firms).

The average earnings of agricultural workers, expressed as a percentage of the average in modern urban sector, is slightly above 50 per cent. This figure, however, seems to overestimate the truth as the agricultural wages are those of 1975 while that of urban sector was that of 1970/71. In the case of Africa south of the Sahara, the average earnings of agricultural employees, expressed as a percentage of those of manufacturing employees, was as follows in 1966: 40% in Zambia, 41% in Kenya, 48% in Malawi and 51% in Ghana.** Thus if

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*Since most workers in 1971 were employed by small firms, the average wage was probably nearer LS 13.5. If this was so, it will cause a downward bias in our estimate of average urban wage.

**ILO "Incomes of Agricultural workers with particular reference to developing countries." Advisory Committee on Rural Development. Geneva 30th Sept.-11th Oct. 1974 Geneva 1974.

we consider that the figure for the Sudan is over-estimated and that wages in manufacturing are on average higher than the average of modern urban wages, we reach the conclusion that the agricultural wages are very low in the Sudan.

However, any attempts to explain real wage differentials have to take into consideration the differences in cost of living, in payment in kind and in continuity of employment and many other things. A few general remarks can be made on differences between agricultural and industrial wages. First, the differences in wages alone do not provide an adequate indication. The annual real earnings of agricultural wage earners are probably much smaller than their monthly or daily wages would suggest because of long periods of seasonal unemployment that most of the industrial workers do not suffer.

Secondly, the cost of living is usually higher in urban than in rural areas. Thirdly, urban and industrial workers enjoy greater job security than is possible with agricultural workers, in addition to which they are in a position to earn overtime.

In the absence of adequate data for different industries in the modern sector, it is difficult to establish firm conclusions on the question of relative wages. However, a comparison of what is available with

the results of our survey revealed that the agricultural wages are among the lowest. Moreover, real wages in agriculture have not been increasing like urban wages to match the cost of living. In question (12) the household migrants were asked to give a brief history of daily earnings in agriculture since 1969. Table 9.8 below shows the pattern of wages in agriculture.

Table 9.8 Pattern of Wage in Agriculture and Price Index for necessary commodities

Year	Total Migrants	Total Daily Cash Earnings (LS)	Average Daily Cash Earnings (Piastres)	% Increase in earnings	% Increase in migration	General Price Index for necessary commodities*
1964	110	44.55	40.5	-	-	
1965	123	51.13	41.5	2.5	11	
1966	123	48.73	39.6	- 4	-	
1967	130	53.38	41.1	3.7	5.6	
1968	145	62.93	43.4	5.6	11.5	
1969	165	76.28	46.2	6	13.7	
1970	201	98.01	48.7	5.4	21.8	106.1
1971	239	127.58	53.3	9.4	18.9	107.5
1972	273	161.78	59.2	11	14	118.2
1973	340	229.78	67.5	14	24	137.6
1974	402	274.49	68.2	1	17	172.2
1975	410	302.74	73.8	8	2	211.1

* For price index see economic survey 1975-76, Economic Research Section - Ministry of Finance, Planning and National Economy - Khartoum - P.34.

The adjustment of wages to changes in the cost of living has been one of the most debated issues of wage policy in recent years. When prices are rising it will generally be considered desirable to protect wage earners against a fall in their standard of living. The modern urban sector wages were revised several times during the last two decades to catch up with the rise in prices. In agriculture, where the development of trade unions has not yet gone far enough to give effective support to the large masses of workers, the increase in wages was much lower. Agricultural wages appear to have increased by only about 82 per cent between 1964 and 1975. This is well below the rise in prices over the same period, which suggests that the real wages of agricultural workers have declined. Between 1970 and 1975 alone the prices of necessary commodities nearly doubled.

It does not appear that the minimum wage rates fixed by the Government from time to time in the modern sector have any effect in agricultural wages. However, it seems there is a positive correlation between wage increases in agriculture and the number of migrants every year. Thus the year 1973 which witnessed the highest increase in wages also witnessed the highest increase in seasonal workers.

9.7 How to increase seasonal migration

At the beginning of this chapter, we mentioned as one of the objectives of this survey to test the hypothesis that the seasonal shortages of manpower in modern agriculture are not absolute and that the traditional labour market is capable of correcting these shortages by offering higher wages or other incentives. On the evidence we have examined in our projections of labour supply in agriculture, the traditional sector seems fully capable of providing much more labour to modern agriculture specially during the period from January to June when many workers are in a state of complete idleness. Seasonal labour is mainly drawn from the general pool of unskilled and low-income workers in this sector. In a society which seems to be generally highly mobile there is no reason to believe that labour would not respond to higher wages. The view that seasonal labour shortages are getting worse as time passes, if true, might be attributed to a declining real wage.

During the late 1930's and early 1940's migration was primarily directed to the agricultural areas. Many of the urban labour force were said to have migrated to the Gezira to earn higher wages in cotton picking. During the second World War the demand for labour in agriculture was far greater than in previous years. Food from the Sudan was needed for the forces in North Africa and the Middle East. During these years wages were reported to

be 15 piastres per day in agriculture against less than 8 piastres in Khartoum urban areas.*

Immediately after the war, the workers in Khartoum urban areas started to ask for higher wages and better working conditions. As a result the Employers and Employed Persons Ordinance was promulgated in 1948. It sets down rules that govern conditions of employment. Contracts of service, hours of work, payment of wages and overtime are some of the issues considered. In addition an independent committee was set up by the Financial Secretary in the same year to investigate increasing wages. The Committee recommended to increase the minimum wage of unskilled workers from LE 1.05 to LE 4 per month.** Only then did urban areas start to witness a labour surplus and migration changed direction from rural to urban areas.

In cotton picking, seasonal migration seems to be affected by the expected estimated yield of cotton. The migrants try to find out about the success of the crop season before they decide to migrate. If yields of cotton are estimated to be high, more workers are attracted to Gezira with the objective of earning more income. Thus

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* Khartoum Province Report for 1945. P.143. Also see McLoughlin, P.F.M. "Labour market conditions and wages in the Tokar and Gash Deltas". S.N.R. 1966, PP. 111-126.

** Fawzi, S. "The labour movement in the Sudan." 1946/1955 London: Oxford University Press 1957. PP. 136-138.

during 1961/62 with an average yield of cotton of 6.02 kantars/feddan, labour employed per ten feddans of cotton was 8, while in 1962/63 with an average yield of 3.35 kantars/feddan casual labour was reduced to 7 labourers per ten feddans. During 1963/64 with an average yield of 2.29 kantars/feddan the number of labourers per ten feddans was even less, only 5.*

From the above, there seems to be historical evidence that labour responds to wages and that seasonal migration is partly determined by the total earnings that migrants can expect at the receiving areas. Or, to put it in another way, migration is a function of the difference in earnings between the receiving and sending areas. For example, the years from 1965 to 1973 were years of low rainfall in Darfur and Kordofan and hence local income-earning opportunities in slack seasons were very low, while 1974 was a year of good rains. Consequently, the number of seasonal migrants to Gezira showed a drop from 18,000 to 20,000 per year in the period 1965-73 to a low of 4,000 people in 1974. An increase in wages could naturally increase the earnings expected in the receiving areas. This might attract new migrants or induce the current migrants to increase the number of family members participating in seasonal work, or both.

Two opinion questions were inserted into the question-

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* Agricultural Manager's Office, Sudan Gezira Board. Barakat 1976.

naire form in our survey. These are question 13 which deals with increasing the number of migrants to different seasonal agricultural operations, and question 14 about the opinion of respondents on the general level of current wages in agriculture. In such opinion questions where different forms of wording may be expected to affect the answers, the interviewers were instructed to adhere to the exact form of the questions. The reported answers to the two questions are shown in tables 9.9 and 9.10.

As was expected, the vast majority of those who answered question 13 considered 'increasing wages' to be the most effective way to increase seasonal migration. Only less than 6 per cent suggested other measures such as provision of transport, provision of health services, etc. However, it is important to note that even the households which did not usually contribute in seasonal agricultural operations in the modern sector answered these two questions. This implies that the non-migrants also believed that wages were low in agriculture, and any attempt to encourage migration would have to consider wage increases.

As for the opinion of the households covered in the survey about the current level of wages, a little above two-thirds of them thought that current agricultural wages were low, one-sixth thought they were

Table 9.9 How to Increase Seasonal Migration

Region	Villages	Total	By Increasing wages	Provision of transport	Provision of health service	Others	Not Reporting
Gezira	Wed Solfab	45	44				1
	Arabas	33	28			2	3
	Hassahisa	20	19				1
	El La'otha	22	6	3			13
	Hilat Hamad	24	5			2	17
Northern Rahad	Ain El Liwaiga	53	44	1	2	3	3
	El Fatirab	16	9	1		1	5
	El Timait	16	15				1
	El Babanosa	23	22				1
	Wed El Obeid North	105	97	2	2	3	1
	El Digairab	17	15				2
Southern Rahad	Wed El Obeid South	32	30				2
	Arabas	20	18	1			1
	Abu Digin	39	38				1
	El Sharafa	35	34			1	
El Dali	Um Arda	49	49				
Kordofan	El Ogaila	88	26		2	6	54
	Abu Sid	112	106	2	1	1	2
El Suki	El Suki	51	50				1
All Regions	All Villages	800	655	10	7	19	109
	% of Total	100%	81%	12%	0.8%	2.4%	13.6%
	% of those answering the question	100%	94.8%	1.4%	1%	2.8%	

Table 9.10 Household Opinion about wage level in modern agriculture

	Village	No. of Households		Household opinion about wages			
		Total	%	Low %	Reasonable %	High %	No Answers %
El Kord- Suki Gezira	Wed Solfab	45	100	60	17	23	
	Arbagy	33	100	70	15	12	3
	Hassahisa	20	100	45	30	25	
	El La'otha	22	100	50	18	32	
	Hilat Hamad	24	100	95		5	
Northern Rahad	Ain El Liwaiga	53	100	70	22	4	4
	El Fatirab	16	100	57	31	6	6
	El Timait	16	100	75	25		
	El Babanosa	23	100	73	17	5	5
	Wed El Obeid North	105	100	66	30	4	
	El Digairab	17	100	70	18	6	6
Southern Rahad	Wed El Obeid South	32	100	68	18	5	9
	Arabas	20	100	85	10	5	
	Abu Digin	39	100	71	13	16	
	El Sharafa	35	100	88	6	6	
Dali	Um Arda	49	100	55	35	10	
Ofan	El Ogaila	88	100	37	1		62
	Abu Sid	112	100	92	4	2	2
	El Suki	51	100	64	23	13	
	All Villages %		100	68	16	7	9
	Numbers	800		544	132	59	65

reasonable, and only 7 per cent believed they were above average. Question 14, however, could also be considered as some sort of double check to question 13. Both of them show that the current level of wages in agriculture is low and would have to be increased to motivate more people to migrate.

The fact that less than 2 per cent of the households reported provision of transport as the main way to increase seasonal migration does not mean that it is not an important factor especially to migrants from Kordofan and Darfur. At present the fourth-class train fare from Nyala in Southern Darfur to Medani in the Gezira is about LS 6. The Gezira Board recruits its workers in the western provinces, pays the transport cost from the point of embarkation to destination and looks after them on the journey, but only one way. The effect of this is to make migrants reluctant to return immediately, and some of them may consume their savings and stay for longer periods in Gezira. As for the means of transport, 85 per cent of households covered by the survey reported that they were transported by truck, 8 per cent by train and the remainder walked the distance.

When the migrants were asked about who bore the transport cost, 169 persons said they bore the costs themselves while 159 persons said it was paid by the farmer or the scheme and only 9 said it was shared between them. The reason why more than half of the migrants paid the transport cost in spite of the

availability of free transport is obvious. Migrants transported by the farmers or the scheme have no option but to accept any wages offered to them, while those who pay their own transport cost can bargain about wages and are free to move between farms seeking higher wages. In sum, the cost of transport seem to be a crucial factor in the decision to migrate as it constitutes a large part of the savings of an individual migrant. Therefore, subsidizing travel by train would increase the total number of migrants available for seasonal purposes. In fact, Sudan railways used to make fare concessions for cotton pickers in the early 1960's but withdrew these concessions in 1967.*

9.8 Individual Contracts of Employment

The question of individual contracts of employment is of the greatest importance for agricultural workers since conditions of employment are largely dependent on such a contract. Nearly half of the household migrants covered by the survey reported they usually conclude an individual contract of employment with the farmers or their representatives. Out of those signing contracts, 15 per cent reported the farmer did not respect the terms of the contract. However, in many small farms agricultural workers are normally bound by verbal rather

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* Ahmed Abdel Hameed "The Agricultural Labour and the Gezira Scheme." Unpublished - Sudan Gezira Board - Barakat 1966. P.3.

than written contracts. This widespread use of verbal contracts is due to a number of reasons, chief among which are illiteracy, not only among workers but also among farmers, the absence of trade unions, and the extreme mobility of workers. In Gezira cotton ginneries, which employ about 10,000 workers for six months every year, it is common to advance a week's wages to induce workers to sign a contract for five to six months. The contract includes insurance for loss of life and limb. The workers who complete their contracts are given a bonus estimated to be 25 per cent of their accrued wage payments.

Usually some of the migrants are paid a small advance every season to encourage them to migrate. It is not, however, clear if these payments are loans to be deducted from the migrant's wages or if they are gifts. Out of 282 households which reported receiving advance payments, 161 said they were receiving gifts while 121 reported receiving loans. These advance payments seem to vary with the size of household. Every season, farmers from Gezira travel to villages known as sources of labour supply, where they meet "pickers' sheikhs". In every village the "pickers' sheikh" holds a meeting with heads of households who desire to migrate for seasonal work. Those who agree to migrate are paid 50 piastres for each child in the

household and LS 1 for every adult person who is capable of contributing in cotton picking. The pickers' sheikh is paid 15 piastres for each adult individual he recruits. Where the law does not specify a minimum age below which work is prohibited, children are sometimes authorised to work provided that certain conditions are observed. Although the principle of equal remuneration for men and women doing work of equal value is already recognised in the national legislation, in practice women are nearly always paid less in agriculture.

9.9 Advantages and Disadvantages of Seasonal Migration

To throw some light on what motivates the migrants, the households covered in the survey were asked about the advantages and disadvantages of seasonal migration. In the case of a household reporting more than one advantage or disadvantage the first one was considered to be the most important factor.

9.9.1. Advantages:

Table 9.11 shows the main advantages of seasonal migration as reported by the households covered by the survey. For all villages together, 57 per cent of those who answered the question reported "earning more income" as the main advantage of seasonal migration, while 29 per cent, 13 per cent and 1 per cent reported "availability of employment", "saving of food in their villages" and "availability of drinking water" respectively.

Table 9.11 : ADVANTAGES OF SEASONAL MIGRATION

Region	Village	Availability of employment		More Income		Saving food at home		Availability of water		All Reporting	
		Total	%	Total	%	Total	%	Total	%	Total	%
Gezira	Wed Solfab	15		24						39	
	Arbajy	18		12						30	
	Hassahisa	6		9		1				16	
	El Laota	1		17		4				22	
	Hilat Hamad	4		15		5				24	
		44	33	77	59	10	8			131	100
Northern Rahad	Ain El Liwaiza	23		17		4		2		46	
	El Fatirab	4		7		2		1		14	
	El Timait	3		6		5				14	
	El Babanesa	2		16		1				19	
	Wed El Obeid North	34		49		15				98	
	El Digairab	3		5		4				12	
		69	34	100	49	31	15	3	2	203	100
Southern Rahad	Wed El Obeid South	5		20		3				28	
	Arabas	11		8		1				20	
	Abu Digin	8		17		9				34	
	El Sharafa	9		19		6				34	
		33	39	64	55	19	16			116	100
El Dali	Um Barda	20	45	24	55					44	100
Kordofan	El Ogaila	3		4		1		1		27	
	Abu Sid	13		88		18		1		102	
		16	12	92	71	19	15	2	2	129	100
El Suki	El Suki	15	34	24	53	6	13			45	100
All Regions	All Villages	196	29	381	57	85	13	5	1	800	100

However, there seems to be some variation between the villages. While one-third of households reported "availability of more employment" as the main advantage of seasonal migration in the villages of Gezira, Northern Rahad and Suki, only 12 per cent of those in Kordofan reported this to be so. 8 per cent of households in Gezira and 15 per cent in Rahad and Kordofan, reported "saving food in their villages" as the main advantage. In nearly all villages more than half of the households reported earning more income as the main advantage. Although only 1 per cent of the households reported availability of drinking water as the main advantage of migration, a considerable number reported this as a second or third important factor. This is because in the dry season, drinking water for the people and their animals becomes a serious problem for many tribes. Making water available becomes the main occupation in the dry season.

In nearly all areas more than half of the households mentioned "more income" as the main advantage of seasonal migration. In the two villages of Kordofan more than 70 per cent of the households reported this as the main advantage. However, it looks artificial to distinguish between finding employment and earning more income, since the former is a means to the latter. In spite of this the high percentage of people reporting

"availability of employment" illustrates the extent of seasonal unemployment and underemployment in traditional agriculture.

9.9.2. Disadvantages:

As can be seen from table 9.12, 36 per cent of households covered by the survey reported "prevalence of diseases" to be the most important disadvantage of seasonal migration. The prevalence of communicable diseases resulting from poor environmental conditions comprises the principal health problem of the Sudan at present. Moreover, some of these problems, such as malaria and bilharzia, have been exacerbated in recent years by the expansion of irrigated agriculture and insufficient attention to related environmental health considerations. Malaria is, in fact, the single greatest communicable disease problem. Although it is widespread throughout the country, it is more serious in Gezira. As can be seen from the table, more than half of the households in Northern Rahad reported the prevalence of diseases to be the greatest disadvantage of seasonal migration, as they usually migrate to pick cotton in Gezira, while less than one-third of the people of Fellata villages in Southern Rahad and only 9 per cent of those of Dali, whose main seasonal operation is dura cutting, reported this to be the most important disadvantage of seasonal migration.

Table 9.12 : DISADVANTAGE OF SEASONAL MIGRATION

Region	Village	Availability of diseases		Travelling Difficulties		Being away from home		Damage of property		Other disadvantages		Total Reporting	
		Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Gezira	Wed Solfab	6		16		6						28	
"	Arbagy	7		6		6		3		3		25	
"	Hussahisa	5		6		1						12	
"	El Laota	10		1				2				13	
"	Hilat Hamad	16		1				2				19	
"	All Gezira	44	45	30	31	13	13	7	8	3	3	97	100
Northern Rahab	Ain El Liwaiza	16		3		7		3		6		35	
	El Fatirab	7		3		2		1				13	
"	El Timait	7		4		2		1				14	
"	El Babanosa	7		9		2		3				21	
"	Wed El Obeid N.	53		15		11		10		3		92	
"	El Digairab	9		3				1				13	
	All N.Rahab	99	53	37	20	24	13	19	10	9	5	188	100
Southern Rahad	Wed El Obeid S.	10		10		6				2		28	
	Arabas	3		3		2		3		3		14	
"	Abu Digin	5		15		12		1				33	
"	El Sharafa	15		9		6				2		32	
	All S.Rahad	33	31	37	35	26	24	4	3	7	7	107	100
El Dali	Um Arda	4	9	23	52	9	21	5	11	3	7	44	100
Kordofan	El Ogaila	14		1		1		5		8		29	
"	Abu Sid	9		2		12		3		74		100	
"	All Kordofan	23	18	3	2	13	10	8	6	82	69	129	100
El Suki	El Suki	13	32	14	34	1	2	12	30	1	2	41	100
	All villages	216	36	144	24	86	14	55	9	105	17	565	100

"Difficulties of travel" rank as the second disadvantage, reported by nearly one-third of total households in all areas. Strangely, the lowest rate is reported by the respondents in Kordofan who usually need to travel long distances by train. The two villages of Kordofan reported "damage to their properties" during seasonal migration to be the greatest disadvantage. Their houses, which are often built of grass, are always liable to be destroyed by animals during seasonal migration to modern agriculture.

9.10 Levels of Income

9.10.1. Income Distribution in Traditional Agriculture:

During the course of the survey detailed data on the incomes of the households were collected separately for the different sources of income. As is usually the case, the details reported by the households had certain limitations due to the tendency of households to underestimate their incomes. However, every effort was made to elicit as nearly correct information as possible by making cross checks and explaining the purpose of the survey to the households.

The classification of the households' incomes by source is shown in table 9.13. As mentioned earlier, the term agricultural worker covers a wide range from the landless labourer wholly dependent upon his earnings to sharecroppers and to the self-employed farmer who

Table 9.13 : AVERAGE HOUSEHOLD INCOME FROM DIFFERENT SOURCES

Area	Village	Total house-holds	Total income for all house-holds	Average Household Income from				% of Household Income From			
				Agric-ulture and animals	Seasonal work	Other sources	All sources	Agric-ulture and animals	Seasonal work	Other sources	All sources
Gezira	Wed Solfab	45	7725	91	65	16	172	53	38	9	100
"	Arbagy	33	6309	109	68	14	191	57	36	7	100
"	Hassahisa	20	4038	86	69	46	201	42	34	24	100
"	El Laota	22	1958	35	47	7	89	39	53	8	100
"	Hilat Hamad	24	2431	21	37	2	60	35	61	4	100
N.Rahad	Ain El Liwaiza	53	9787	54	42	88	184	25	23	48	100
"	El Fatirab	16	1648	40	37	26	103	39	36	25	100
"	El Timait	16	2858	79	52	47	178	45	29	26	100
"	El Babanosa	23	7070	130	22	155	307	43	7	50	100
"	Wed El Obeid N.	105	37814	101	53	206	360	28	15	57	100
"	El Digairab	17	3045	81	11	87	179	45	6	49	100
S.Rahad	Wed El Obeid S.	32	13628	160	29	237	426	37	7	56	100
"	Arabes	20	4123	137	31	38	206	66	15	19	100
"	Abu Digin	39	20921	304	538	179	536	57	10	33	100
"	El Sharafa	35	8886	150	78	26	254	58	31	11	100
El Dali	Um Arda	49	8003	83	81	19	163	39	50	11	100
Kordofan	El Ogaila	88	12607	78	18	47	143	55	12	33	100
"	Abu Sid	112	29609	116	51	97	264	44	19	37	100
El Suki	El Suki	51	8160	76	67	17	160	47	42	11	100
	All villages	800	189691	103	49	85	237	43	21	36	100

takes temporary seasonal employment only at times that do not conflict with the labour demands of his own farm. This simply means that there is no "typical" agricultural worker. In estimating agricultural workers' income, therefore, we only try to roughly estimate average positions which may be useful in assessing the relative prosperity of agricultural workers or farmers in traditional agriculture.

The average household income from all sources was estimated to be LS 237 per year. There is, however, a wide dispersion of income around the average. From a social point of view it would be necessary not only to increase the average agricultural income per household but even more urgently to level up those incomes which are much below the average. According to the household sample survey the average annual income per household in the Northern Provinces in 1967/68 was LS 189 pounds. The average for urban households was LS 411, that for semi-urban LS 270 and that for rural households LS 148. This rise in the money income of rural households during the course of the decade does not necessarily mean a rise in real incomes since, as we have mentioned earlier, the prices of necessary commodities more than doubled during this period.

For all areas together, income from agriculture and animals comprised the bulk of the household income. Being

the largest single source it accounted for 43 per cent of the total income, while income from seasonal work accounted for 21 per cent and that from other sources 36 per cent. Seasonal migration was on average contributing about LS 49 per year or just above one-fifth of the household budget. However, this is the average for the whole households covered by the survey. When we consider only those who contributed in seasonal operations in 1975, its contribution was above one-third of the household income.

Around these averages there seems to be a wide variation between villages. The highest household incomes from agriculture and animal resources was reported in the villages of Southern Rahad, while the lowest was reported in El Dali and the villages of Gezira and Northern Rahad. In addition the villages of Gezira reported very low average income from "other resources" but seasonal earnings contributed about 40 per cent of their incomes. In all, the poorest villages were those where incomes from seasonal work constituted the highest share of their incomes.

Table 9.14 and Fig. 9.1 highlight some points about the distribution of income of the households covered by the survey. The first point is that while some disparity between the top and botton brackets exist, it is much lower than that between urban and rural areas. At the botton of the distribution, 19 per cent of the households

Table 9.14 Cumulative Distribution of Income

Average Income Size Class	Total Number of Household-	Total Income (LS)	% of House-holds	% of Income	Cumul-ative Dist-ribut-ion of House-holds	Cumul-ative Dist-ribut-ion of Income
50 - 100	46	3,389	5.75	1.79		
100 - 150	104	14,255	13.0	7.51	18.75	9.30
150 - 200	264	45,987	33.0	24.24	51.75	33.54
200 - 250	40	8,161	5.0	4.30	56.75	37.84
250 - 300	147	38,492	18.38	20.29	75.13	58.13
300 - 350	23	7,070	2.88	3.73	78.01	61.86
350 - 400	105	37,814	13.13	19.93	91.14	81.79
400 - 450	32	13,628	4.00	7.18	95.14	88.97
450 +	39	20,921	4.86	11.03	100.00	100.00
Total:	800	187,717	100.00	100.00		

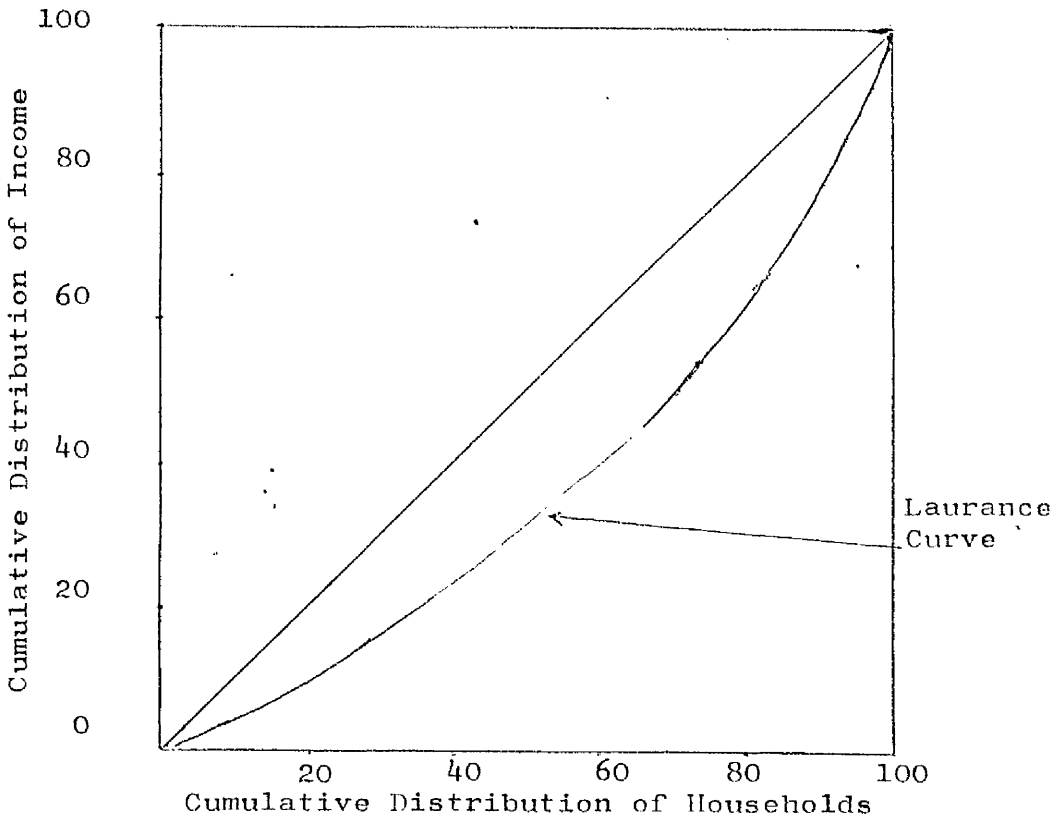

Fig. 9.1 Cumulative Distribution of Income

are receiving 9 per cent of total income, while the top 9 per cent are receiving 18 per cent of total income. Moreover, at the botton of the ladder more than half of households are receiving one-third of income, while one-quarter of households at the other end are receiving 42 per cent of incomes.

The second point is that household incomes are very low in all areas compared to urban incomes; the table shows less than 10 per cent of households receiving annual income more than LS 400, while the average urban household income was LS 411 in 1967/68. If we arbitrarily consider LS 200 to be the line below which the population may be designated as the rural poor we find slightly above half of the rural population to be in this group. Some recent attempts at setting a poverty line took the poorest 40 per cent of the population as the segment of the population for whom specific income growth targets should be established at a rate significantly faster than the national average.*

9.10.2. Income Distribution in Traditional Agriculture and in other Areas:

Taking into consideration that within the average figures for incomes in the various provinces there is

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* R.S. McNamara, President, World Bank Group, Address to the Board of Governors (Washington D.C. 25th September 1972) P.16.

much individual variation, we can try to compare income distribution in various regions. Against an average income of LS 237 in traditional agriculture in 1975, the average tenant in the Gezira had income ranging from LS 250 to LS 350 per annum on 20 feddan tenancies and roughly double that amount on 40 feddan tenancies in the same year.* Moreover, as mentioned earlier, farmers in the Gezira scheme are not subject to land tax and have access to many free or subsidized social services, electricity etc. In mechanized farming, the net income of operator per feddan in 1975 appeared to range from LS 1 to LS4 per annum, while the size of holding may vary from 500 to several thousand feddans. This means that incomes of big farmers in mechanized rainfed agriculture were several times higher than those of traditional farmers.

Recently, organized urban wages for unskilled workers were estimated to be LS 225 per annum. Workers in this sector, however, enjoy certain fringe benefits and are sometimes in a position to earn overtime.** At the bottom of the urban income ladder, incomes and wages

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* Data obtained from an unpublished survey conducted by the Sudan Gezira Board.

** Further, the Social Insurance Act of 1974 provides benefits in case of death, for compensation in case of accident, and for pensions on retirement (at 60 years for men, at 55 for women).

were a bit lower. According to the ILO estimates, incomes of the unskilled labour in casual or informal employment were around LS 15 to LS 25 per month in 1974.

However, it is important to notice that in traditional agriculture most household incomes represent not just an individual's earnings, but the return to the labour of all the members of the household. This is not generally the case in the urban areas except in the cases where the household is self-employed. In addition, traditional agriculture being mostly dependent on rain, the farmers are subject to significant income fluctuations. Urban household income, on the other hand, is not usually subject to such fluctuations. Reference must also be made to the differences in cost of living between urban and rural areas. The higher cost of living in urban areas is partly the result of the cost of housing and transport. But it is important also to consider the differences in style of living, differences in the distribution of educational and health services as well as the provision of electrical and water services.

The above comparisons are, however, between incomes of traditional farmers who usually participate in seasonal migration, and incomes in other areas. But there are many farmers who do not gain from seasonal migration. Temporary migrants comprise around 16 per cent of the labour force or 6.5 per cent of the total population. This includes rural-urban as well as

rural-rural migration. If we, therefore, assume that seasonal migration takes place at a time when opportunity cost in traditional agriculture is zero, the non-migrant rural household income could be estimated to be LS 188 per annum in 1975. This figure when compared with incomes in other areas shows a wide disparity. There are also many rural families who are entirely dependent on farming only and hence have no access to incomes from other sources. For such families, annual incomes rarely exceed a hundred pounds.

The overall picture that emerges from the above may be characterized as follows: Traditional agriculture in the Sudan is faced with a twofold problem as regards incomes: on the one hand, the gap between average incomes in this sub-sector and those in urban areas and on the other hand, the often substantial disparities between incomes within agriculture. Incomes in irrigated and mechanized rainfed agriculture are much higher than incomes in traditional agriculture.

The gap between urban incomes and farm incomes in the traditional sector has widened over the years partly because of the rise in urban wages and partly because of the fall in farm incomes due to the drought in the early 1970's. Another factor which has helped to widen the gap in living standards is the movement of domestic terms of trade against farming. Not only have farm

incomes fallen because of the decline in the prices of commodities such as gum Arabic on the international markets, but in many cases the purchasing power of these incomes has been further reduced by the rise in the prices of essential goods. For example, the prices of sugar and tea have tripled during the course of the last decade.

Moreover, as mentioned earlier, the government development policies which were biased in favour of the modern sector have been a major cause of income disparities between regions. The population of the traditional sector lacks income earning opportunities such as exist in the modern sector. In addition, farmers and industrialists in the modern sector have access to credit at much lower rates of interest than those in the traditional sector. As a consequence of the inadequacy of household incomes in traditional sector, many farmers find it impossible to put aside anything at all for saving and investment. Thus, they are forced to borrow at a tremendously high interest rate and to such an extent that a substantial proportion of them will remain helplessly in debt for a long time. Most farmers cannot survive from one harvest to the next without borrowing heavily from private sources at interest rates of up to 100 per cent. Further, in order to repay the debt the farmer is forced to sell the crop just after harvest when prices are usually at their lowest.

9.11 Productivity of Labour in Traditional Agriculture

The coming pages present some results pertaining to labour productivity in Sudanese traditional agriculture. There are several reasons why such a study may be important. The first emerges from the ILO recommendation to place more emphasis on agriculture in general and traditional agriculture in particular. We believe that knowledge of the level of productivity of different factors of production in this sub-sector seems necessary for planning.

Another factor is related to the government's new development projects in its development plan, such as Rahad and Kenana, which are expected to cover areas of traditional agriculture. In the cost-benefit analysis of these projects planners usually use shadow prices, i.e. prices that adjust for market imperfections. One important shadow price is the "shadow-wage" which for unskilled labour depends mainly on the marginal productivity of labour in traditional agriculture.

9.11.1. The Production Function Used:

In this study use is made of the production function technique. Although numerous algebraic equation forms can be used in deriving the production function, not all of them can be used to characterize agricultural production under all environmental conditions. The algebraic form of the function and the magnitudes of its co-efficients

will vary with soil, climate, type of crop, state of mechanization and the other inputs used.* Hence the first problem met in this study is the selection of an algebraic form of function which is most likely to be consistent with the phenomena under investigation.

After examining previous investigations and theoretical studies the Cobb-Douglas function was thought to be most appropriate. The choice was made on the following basis.**

(a) It has been widely used in production function studies.

(b) It has logical justifications.

(c) It can be easily transformed into linear regression equations.

The formula used is of the type

$$Y = AX_1^b \; X \; {}_2^c \qquad (1)$$

Where X_1 and X_2 are the variable resources measured.

Y is output

A is constant

and are the respective elasticity co-efficients of the independent variables.

This function is linear in the logs taking the form

$$\text{Log } Y = \log a + b\log x_1 + c\log x_2 \qquad (2)$$

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* Earl O. Heady and J.L. Dillon "Agricultural Production Functions." Iowa State University Press, Iowa U.S.A. 1961.

** Earl O. Heady and J.L. Dillon .... ibid.

This function allows either constant, increasing or decreasing marginal productivity. The marginal product-equation is:

$$\frac{dY}{dX_1} = baX_1^{b-1}X_2^c = \frac{baX_1^b X_2^c}{X_1}$$

$$\frac{dY}{dX_2} = caX_2^{c-1} X_1^b = \frac{caX_2^c X_1^b}{X_2}$$

In the case under consideration in this study, Y is the value of agricultural output, X_1 is land in feddans and X_2 is labour in man days.

Equation (2) above is the one used to estimate the production parameters. Two important omitted variables are 'management' and capital inputs. If these variables are not correlated with the dependent variables included in the equation, their omission will not bias the estimate of b and c. However, the assumption of zero correlation between the excluded factors and any of the inputs is not likely to hold in the real world. In general a certain degree of positive correlation is to be expected between capital and land.* The result will be a tendency to overestimate one or more of the co-efficients of the included variables.

As regards management, perfect correlation is not expected to exist between this factor and other factors.

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* Ali Abdel Gadir, "Productivity of Labour in Sudanese Traditional Agriculture." Some explanatory results, Economic and Social Research Council - occasional paper No. 8, Khartoum - July 1976.

Also see Ali Abdel Gadir, "Some aspects of productivity in Sudanese Traditional Agriculture. The case of the Northern Province." Economic and Social Research Council, Bulletin 59, Khartoum July 1977.

This is especially true when it is not of vital importance in a peasant economy in a traditional sector where differences in management input are not likely to exist. This is in addition to the difficulties of measuring the management factor in such an economy.

In the absence of detailed records on the actual use of capital items, however, little can be done to overcome these measurement difficulties. The returns of our survey show an exceptionally poor response to the question about the use of capital. Only 12 per cent of households reported to be using machinery in land preparation and crop harvest. However, we believe that a reasonable way of interpreting the results is to assume that capital ownership is highly correlated with land ownership, and hence the land input is really a composite index reflecting capital as well.

9.11.2. The Variables Used:

Output: In measuring output farmers were asked to report the whole farm output in 1975. As expected some difficulties were met as most farms produce either more than one type of product or several qualities of the same product. For the purpose of this study output is proxied by the value of the output of crops. This required information about physical output as well as prices of the crops grown.

However, as mentioned earlier, our survey also included a separate question about incomes by sources.

Income from agriculture was in fact a proxy of the farm output and is used as a double check to the value of output. In case there was a big difference between the value of output and agricultural income, the latter was adjusted as there is a tendency among households to underestimate their incomes.

Land: Regarding land input, the figures of land holdings recorded in the survey are used in this study to represent the land used in the production of output. Unfortunately, we were unable to use a normalization unit to account for the differences in land quality. However, it is assumed that all units of land in each area are relatively homogeneous with respect to land quality.

Labour: In measuring the labout input, what is considered is a measure of the labour input actually used in producing the given crop, and not a measure of total labour utilized and unutilized available during the production period. To get this information the number of members of the household who were economically active (15 +) was ascertained for each household. In the case of a household reporting any member to be on permanent migration, he was deducted from the economically active household. Secondly, account was taken of variations in participation rates in each region. For the three Fellata villages where women were found to be inactive outside their homes, their participation in crop output was considered to be nil.

Moreover, an account was taken as far as possible of variations in labour quality. Unlike cotton picking, in the case of dura, which is the main crop in these regions covered, the work performance of women was expected to be much lower. As a result a standardization variable was used. Female labour was estimated to be equivalent to 75 per cent of male labour. Finally, it was assumed that labour in the traditional sector worked for 25 days per month, and that crop production took six months.

Where Y is the value of the output of crops, X_1 is land in feddans and X_2 is labour in man-hours our results are given by the set of equations in Appendix 9.1. According to these equations the value of the marginal product of labour is approximately 23 piastres per man-day. This clearly indicates that the productivity of labour in traditional agriculture is substantially low. Compared to seasonal work in modern agriculture where daily earning was found to be 38 piastres and the minimum wage of 63 piastres per day in the urbanized modern sector, the marginal product of labour in traditional agriculture is rather low. This however, is not surprising if we consider the low standard of health of the rural population in traditional sector associated with an unbalanced diet and bad housing conditions. Malnutrition and diseases are largely responsible for lowering the productivity of labour.

The marginal product of labour as estimated above

is lower than alternative earnings of labour. This finding has many interesting implications. However, considering the doubts regarding the accuracy of the data used and the assumptions made, the implications that can be drawn from this should be treated with caution.

The finding is in striking contrast with the usual assumption of zero marginal productivity of labour in agriculture. It shows that labour productivity in traditional agriculture is substantially higher than zero. However, it supported the usual assumption in dual economy literature where the wage rate is usually assumed to be larger than the marginal product of labour.

The above result may explain the phenomenon of labour migration to modern sector. In economic literature the individual decision to migrate is usually formalized as a function of the expected gains from migration, which are measured by the difference in real incomes and the probability of a new migrant obtaining an urban job.* If we assume (a) the probability of finding a job in modern agriculture is fairly high, and (b) labour is paid according to its marginal productivity in traditional agriculture, then we should expect labour to migrate to modern agriculture. As we have noted

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* Todaro, M.P. "Income Expectations ..... op.cit.

previously, there is no tendency for people to migrate permanently and it is only seasonal migration that was observed. A possible explanation for this is probably that migration cannot be explained by exclusively economic motivation. The health conditions of the population, the working conditions in modern agriculture and the costs of transport seem to be important factors in the decision to migrate.

9.12 Conclusion

At peak demand for labour in cotton picking more than half of the country's labour force are almost idle. In the absence of widespread non-farm employment opportunities or labour-intensive infra-structural development programmes to mitigate seasonal unemployment in rural areas, the traditional sector can supply labour at a low opportunity cost. Labour from traditional agriculture is found to be willing to migrate provided seasonal migration is made more attractive. The household individuals covered by our survey were first asked about their evaluation of current wages in seasonal agriculture, and secondly about how they thought seasonal migration could be increased. The vast majority reported that increasing wages to be the surest way to increase migration and that they considered wage levels in agriculture to be very low. An appropriate increase in wages would be desirable resulting in greater supply of seasonal labour to modern agriculture and higher incomes for the

comparatively poor.

It is difficult to see convincing justification for agricultural mechanization in the Gezira Scheme if the aim is to maximize output and economic welfare. It might be true that the Gezira tenants will benefit from mechanization, but more than half a million seasonal workers will fail to supplement their incomes. Employment of seasonal workers from traditional agriculture in modern agriculture can be a means of redressing the inequalities in incomes between areas.

Attempts were made to measure the extent of underemployment in traditional agriculture as well as rural incomes. Traditional agriculture was found to be characterized by high rate of underemployment and low productivity and incomes. There exists a wide gap in income between traditional and modern agriculture on the one hand and between traditional agriculture and urban areas on the other hand.

The marginal productivity of labour in traditional agriculture was found to be positive and lower than the alternative earnings of labour in the modern sector. Lack of complementary factors to labour, the health conditions of the population and malnutrition seem to be largely responsible for lowering the productivity of labour.

CHAPTER 10

Summary and Suggestions

In this chapter we have not attempted to give detailed summaries of the results and conclusions reached in the previous chapters. Rather we outline the main findings and leave it to the reader to refer back to the detailed discussion and conclusions in each chapter.

Previous analyses have mainly identified unemployment and rural-urban migration as the Sudan's main employment problems. This study is based on a broader analysis and it has travelled far beyond the confines of the employment problems narrowly defined. This is inevitable since employment in the analysis of the country's situation is inseparable from overall economic and social development. Thus any attempt to deal with the country's employment problems has to consider the whole range of measures related to economic and social inequalities, equity and low productivity in the traditional sector, underemployment and lack of productive work in the dry season, and low incomes. Not only does part of the solution to these problems lie in development policies, but

past economic policies were found to be the cause of many of these problems.

Past development policies stressed the growth of national income but neglected the equally essential goals of equitable redistribution of the benefits of growth, and of providing productive and remunerative employment for all. This shortcoming was pointed out by the ILO mission to the Sudan, which attempted to make employment one of the major objectives of national development policies and, accordingly, to help national authorities to formulate and implement employment-orientated development strategies.* Economic growth as such is no longer at the top of the agenda, as it was for the last two decades. It has come to be recognised that a rapid and consistent rate of growth is essential but not sufficient for national progress. The lesson that has been learned is that satisfactory growth of the national product is not sufficient to provide a guarantee against unemployment and poverty in certain regions of the country.

To achieve a high rate of growth of national income, higher priority was given to the development of the modern sector and the expansion of industry. Industrial-

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* ILO "Growth, Employment and Equity .... op.cit P. XIX.

ization, it was thought was the solution to the problems the country faced. This has, no doubt, contributed substantially to change and progress in the country, but from the overall development point of view the results have not been as encouraging as had been expected. Many reasons can be put forward to explain this situation. In the first place most of the newly established industries were located in the Greater Khartoum area. This contained more than 70 per cent of the country's total establishments in 1971. Secondly, in most cases newly established industries were capital intensive, creating jobs for relatively small numbers. Thirdly, the rise in expectations caused by industralization has resulted in a considerable migration from rural to urban areas, thus increasing the pressure on the latter and causing unemployment. Fourthly, this lopsided development of the national economy has actually increased poverty in many rural areas as witnessed by the widening gap between rural and urban incomes and the failure of the largest section of the population to participate in the national development process.

In the last few years, however, there has been an increasing awareness of the urgency of the rural problem and the attention that has to be paid to the modernisation of the traditional sector. This stems primarily from recognition of the fact that development is impossible

without a greater contribution by this sub-sector, which comprises two-thirds of the country's population. Some attempts were made by the government to establish a few industries in these areas, mainly textile and sugar factories.

However, rural development cannot be conceived in terms of isolated activities.* It is a much more complicated process which requires a more comprehensive integrated approach. This broader vision of rural development is not limited to economic development in the narrow sense but embraces the promotion of social development as well. In other words, it includes a variety of programmes and activities which aim at generating new employment opportunities, redistribution of incomes, improvement of health, nutrition, housing, education and training, and wider participation by the rural population in the implementation of these programmes.

In this study an attempt has been made to assess and define employment problems in the country. Unfortunately, fully satisfactory quantitative measures of these problems were not possible, not only because of shortage of manpower statistics, but also because of conceptual difficulties regarding what is really meant

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* Anker, D.L.W., "Rural Development Problems and Strategies," Inter. Lab. Review - Geneva 1973, P. 461

by employment and unemployment in the circumstances of a less developed country such as the Sudan. The labour force is usually defined as the sum of the number of people employed and unemployed, the latter in turn being commonly defined as people who are not at work but are seeking work or available for work. The rate of growth of the labour force depends upon the rate of growth of the population of working age and upon participation rates. However, it is important to recognise that the distinction between members of the labour force and dependents is not at all clear in rural areas. Children from a fairly young age may devote a part of their time to productive employment.

Another important difficulty about the labour force concept is that the number of people seeking work varies with the amount of work available. In the Sudan it was estimated that in 1973, 58 per cent of the labour force were self-employed or unpaid family workers. Many of these who do not bother to look for work when they think there is no chance of finding any, start to do so if the chances improve. This may lead to changes in the size of the 'labour force' and makes it hard to measure. If the concept of the labour force is not well adapted to analysing social realities in the country, this is equally true of the concept of unemployment. In the accepted terminology a person can be unemployed if he

is a member of the labour force, and if it is not clear who is or is not in the labour force, it will be equally difficult to identify who is or is not unemployed.

However, at present the Sudan does not suffer from a serious unemployment problem compared to many less developed countries. It is negligible in the rural areas and relatively low in urban areas. It is estimated to have been about 6 per cent for the last two decades. This constant rate does not mean a constant absolute number of unemployed since the labour force is increasing. In July 1977, 290,000 persons were estimated to be unemployed. This is, of course, an enormous potential resource for raising output - if it could be mobilised.

Unemployment seems to be heavily concentrated among the young. Around 60 per cent of the unemployed were found to be below 25 years of age, many of them looking for their first job. In addition, they were relatively better educated than the remaining population.

Most of the causes of unemployment in the country are, in one way or another, aspects of imbalances: the imbalance between the growth of the labour force, the urban population and education, and the overall growth of the economy; and the imbalance between people's aspirations and expectations of work and the structure of incomes and opportunities available.

As for the educated unemployed, the root of the problem lies in the interaction of the conventional educational system and the wage and salary structure through the allocation of jobs and wages by reference primarily to educational qualifications. This has led to a great desire for higher education, such education being associated in the minds of the public with income aspirations and expectations which the economy is becoming increasingly unable to fulfil. The educational system needs to be orientated towards education more directly related to the needs of the country. In addition, a co-ordination between man-power planning and educational planning is likely to help in eliminating the imbalance between the supply of man-power and the jobs available.

The government policy of placing a higher floor under wages in the modern-urban sector is partly responsible for unemployment. By such a policy the government partially determines the wage structure in the economy and hence weakens the market adjustment mechanism. The determined wage rate, being higher than the shadow wage, discourages the use of labour as an input. Thus investors shift to labour saving machinery.

Last but not least, trade union organizations have contributed to the unemployment problem by struggling

to end temporary employment in the government sector. Moreover, they have partly succeeded in banning the termination of employment by the employer. The loss of freedom to dismiss workers may cause the employers to refrain from employing new workers.

However, the dominant feature of the employment situation in the Sudan is underemployment. These are persons whose employment is either part-time, seasonal, casual, or of inherently low productivity. Under-employment seems to be quantitatively far more important then unemployment in the country, mainly because a large part of the labour force is either self-employed or workers in family enterprises, but partly also because in the absence of unemployment funds, the unemployed are forced to take up some employment however low the resulting income may be. Underemployment, while prevailing in nearly all sectors, is more serious in agriculture. It is in this sector that the seasonally unemployed, the casually employed and those nominally employed but with very low productivity are numerically most significant.

In spite of the complexity of the underemployment phenomenon, some attempts were made to investigate the factors giving rise to it, the forms it takes, and to measure its magnitude. In traditional agriculture most areas have no irrigation facilities and the period of agricultural work is estimated to be from four to six

months in the year. During the dry season people are forced to be unemployed. However, the peasant population are also underemployed during part of the agricultural working period. This is due chiefly to the physical environment and health conditions of the population in the traditional subsistence agriculture, the primitiveness of the methods of cultivation in use, and marked seasonal fluctuations in agricultural activity. This ineffective and low level of utilization of labour results in low productivity and incomes. The decline in subsistence standards, combined with the development of new wants, has compelled part of the rural labour force to seek wage-earning employment elsewhere.

Fortunately, there are already a significant number of opportunities for wage employment in the rural areas to provide additional income for at least some of this group. These opportunities are found in modern agriculture, which faces acute labour shortages during harvest time for certain crops. The demand for hired labour in modern agriculture is frequently at its peak just at the time when the need for work on the traditional family holdings is at its lowest. The largest of these sources of rural wage employment is in cotton picking.

The average earnings of these employees from seasonal work in the modern sector are extremely low -

barely LS 50 a year. However, for people with no access to cash incomes and very limited access to food, any opportunity to work, even for this amount of money, can be important. This is specially true when local income-earning opportunities are nil in the dry season.

However, the Gezira Board believes that there will be a severe labour shortage when certain proposed agricultural projects come into production over the next few years. To deal with this problem it has taken steps towards diversification and mechanization. In this study no evidence was found that current wages rates justify increased mechanization. The real issue is whether it would not be cheaper to increase the supply of seasonal labour by increasing wages and subsidising transport than to save seasonal labour by mechanizing certain agricultural operations now carried out by hand. The proposition that the supply of seasonal labour is elastic is statistically tested and labour was found to be ready and willing to participate in seasonal operations for higher wages, lower transport costs and improved health conditions.

It seems to be artificial to separate employment problems from the general problem of economic development. The basic issue of the development problem is to make more productive use of available resources, many

of which are currently under-utilized. However, economic development may have conflicting aims and economic policies may have conflicting consequences, especially where growth, employment and social justice are concerned. What is necessary is at least an awareness of the possible implications of these policies. Mechanization may benefit the Gezira tenants but may deprive more than half a million seasonal workers of employment and income. Thus, setting aside the economic point of view, mechanization is not justifiable from the equity point of view.

The problem of low incomes and poverty in the country seems to be a problem of inequality. The richest 10 per cent of households typically receive about 34 per cent of income whereas the poorest 40 per cent receive 15 per cent or less and the poorest 20 per cent receive about 5 per cent. This highly unequal distribution of income observed seems to be largely due to unequal distribution of income-earning opportunities, to differences among individuals in education and to the intersectoral wage differentials among the employed. As indicated previously, this inequality between regions was encouraged by the consistent neglect of the traditional sector in development plans. A growth strategy based solely on the potential of the modern sector, had been significantly biased against traditional agriculture and regions which are already lagging behind the growth poles of Greater

Khartoum and the 'triangle' between the Blue and White Niles.

For those members of the working population whose incomes are below the national average some improvements in living standards seem to be necessary. Measures such as wage policy could be used to reduce inequality in income distribution. Protection of agricultural workers through minimum wage regulation seems to be accepted as a major objective of wage policy. However, in determining such a minimum both the level of wages and the industry's capacity to pay that level have to be considered. Certain problems are expected in dealing with such a policy.

The first problem is whether it should aim at the establishment of a nationally uniform minimum wage in all regions or whether a more differential system should be established to take account of differences in prosperity in different areas.* If a general minimum wage is to be established, the existence of a wide variation in capacity to pay might pose a dilemma. A wage that might be unfairly low if paid by large-scale farmers in the mechanized rainfed areas might seem inappropriately high if it was fixed as the lowest wage that could legally be paid to seasonal workers by farmers in Gezira. If a

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* ILO "Minimum Wage Fixing and Economic Development." Geneva 1968.

uniform minimum is to be established it has to be set either at such a low level that even the least productive farms can afford to pay, or at a higher level that would cause some farmers to reduce or cease production. In the first case few workers might benefit and in the second case some farms would have to be helped to pay the minimum wage fixed. To avoid these problems it seems more appropriate to introduce a differential minimum.

The levels of the minimum wage should be fixed on the basis of simultaneous consideration of both the workers' needs for maintaining a higher standard of living and the economic possibility of ensuring them such living standards. How these two criteria of social desirability and economic feasibility shall be combined in determining the level of minimum wage is a second basic problem.

A third problem is how to set up appropriate machinery for the inforcement of the minimum wage. This is expected to be especially difficult in agriculture with the country's limited administrative resources. The use of workers' organisations might help in this context. This is likely to be difficult for agricultural workers who are not yet organized in trade unions.

The enforcement of a minimum wage in agriculture is expected to affect both productivity and supply of seasonal

labour in modern agriculture. As regards productivity, a rise in wage cost might serve as an incentive to the employer to organize production more efficiently. Moreover, an improvement in the workers' living standards might raise their personal efficiency as a result of better health and increased incentive to work. This increase in productivity, if achieved, would create its own capacity to pay. As regards the effect of minimum wage on the supply of labour, this could be two-fold. Thus the increase in wages would act as a positive incentive for seasonal migration. On the other hand, the rise in wage cost might induce farmers in modern agriculture to increase their family supply of labour.

However, it is important to recognise that the proportion of agricultural workers does not exceed 20 per cent of the total labourforce. Thus the benefits of wage policy are likely to reach only a relatively small proportion of the working population. Further, to the extent that the cost of higher wages might be passed on to consumers in the form of higher prices, income distribution might deteriorate. In the traditional sector, the physical capacity of many people is impaired by malnutrition, disease, bad housing and inadequate drinking water. These cannot all be overcome by higher wages in modern agriculture. Farmers in the traditional sector are often poor due mainly to poor fertility of the soil,

natural hazards, rudimentary farming methods and insufficient productivity, a substantial degree of seasonal unemployment and price fluctuations.

Reducing inequality and providing essential human needs would generally involve making real efforts to develop traditional agriculture while continuing to promote the growth potential of modern agriculture in which the necessary capital would be generated. The country's available savings have to be induced to flow from the modern to the traditional sector. Fiscal policy must aim to influence the decisions of individual entrepreneurs. It might be necessary to create a regional difference in the attractiveness of investment so as to distort the flow of resources.

Steps promising to contribute to such a policy include measures such as the following:

(a) Correcting institutional deficiencies of the capital market which result in traditional farmers having little access to credit.

(b) Reduction of import duties on essential agricultural inputs.

(c) Improvement of production techniques in the traditional sector.

(d) Correction of existing government-determined agricultural price levels to ensure adequate incentives for increasing output both for domestic needs and

for export.

While efforts must be pursued to promote as much investment as possible in agricultural production itself, it would be advisable to develop non-agricultural occupations in rural areas. Various fiscal and related policies can be used to stimulate the establishment of industries in rural areas.* Particularly industries processing agricultural products or producing agricultural inputs which promote improved technology would have to be encouraged. Fiscal incentives could also be used to encourage labour-intensive public works programmes in rural areas, especially in the off-season for agricultural work.

If steps were taken to make rural life more attractive, migration to urban areas would be checked.** This would also attract the skilled personnel required in agricultural services for promoting agricultural development. Opening up feeder roads, provision of schools, hospitals, piped water and other services are some examples. The country's present system of education is regarded as the escape route from the countryside. The primary school

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* Ali A. Suliman, "Tax incentives for Industrial Investment in the Sudan." International Bulletin for Fiscal Documentation, August 1973, PP. 315 - 323.

** J.R. Sheffield (ed) "Education, Employment and Rural Development," - the proceedings of a conference held at Kericho, Kenya in Sept. 1966 - East African Publishing House 1967.

education is used mainly as a foundation for further education and has little value to offer a child returning to an agricultural environment after only a few years. Children who proceed to secondary school are often reluctant to work in the countryside. This calls for a fundamental reform of the educational system.

Throughout the country, the composition of the demand for labour does not match the supply. Excess demand for certain categories of skills co-exists with excess supply of other categories. This is further exacerbated by emigration of skilled labour from the country. In addition, technical education is not adequately supplied partly because of a deficiency in private demand. Government employment policies, social values, and salary scales all put the technician at a disadvantage. The educational policies ought to contribute to alleviating employment problems by attempting to relate higher education as much as possible to national priorities.

However, it should be emphasised that the implementation of the above points, even if it alleviated employment problems, would not be a sufficient condition for solving the enormous employment and distributional problems in the country. Much analytical work is needed to deal with many aspects of the various kinds of employment problems. The following are some lines for

further research which may help in dealing with the country's employment problems:

First, the distinction between employment and unemployment and between economic and non-economic activity are difficult to draw in a country like the Sudan. It is easy to make unemployment look larger or small depending on various definitions. Unemployment shades into underemployment, and it is really the latter that ought to be measured. Thus a clear need exists for new concepts and definitions suitable to the conditions of the country to measure the magnitude of underemployment of the country's labourforce.

Secondly, how to redress the inequality between regions of the country has been the subject of considerable discussion in the Sudan. The critical question is whether concentration of investment in the modern sector and the increased incomes which are generated there will also benefit the traditional sector or whether it restricts opportunities for growth in the traditional sector. A significantly greater research effort is needed to investigate strategies for correcting the existing dualism and developing traditional agriculture.

Thirdly, the available information about emigration of labour from the Sudan is scanty. Basic data related to the number of migrants, their qualifications, their motives and the costs and benefits to the country is

needed.

All these are matters which could be discussed. But with only limited time, resources and data available, they can only be put forward as areas demanding future research.

APPENDICES

Appendix 5.1

AGE-SPECIFIC ACTIVITY RATES

AGE GROUP	EQUATORIA				BAHR EL GAZAL				UPPER NILE			
	URBAN		RURAL		URBAN		RURAL		URBAN		RURAL	
	M	F	M	F	M	F	M	F	M	F	M	F
10-14	47.50	7.94	52.71	5.35	64.44	10.36	97.63	24.40	52.07	11.36	82.07	7.53
15-24	67.33	9.13	64.50	6.58	76.96	10.84	97.38	23.20	69.01	12.45	87.84	8.23
25-44	96.81	10.01	97.45	8.82	92.04	15.66	98.47	26.00	93.46	11.69	98.58	14.44
45-59	94.15	13.93	97.16	14.19	90.53	17.67	96.04	29.84	89.37	11.08	97.67	19.85
60 and over	65.98	8.12	82.46	8.09	62.74	15.14	61.99	14.23	66.84	13.35	77.48	8.75
All ages (10+)	80.83	9.71	81.75	8.52	82.91	13.70	96.16	24.90	79.74	11.87	92.16	12.18

AGE GROUP	DARFUR				KORDOFAN				BLUE NILE			
	URBAN		RURAL		URBAN		RURAL		URBAN		RURAL	
	M	F	M	F	M	F	M	F	M	F	M	F
10-14	53.28	12.45	66.11	50.52	49.28	7.88	82.42	37.73	43.01	2.64	60.23	5.99
15-24	71.42	14.68	74.69	52.20	65.59	9.86	88.29	37.88	62.17	4.95	73.78	6.44
25-44	98.25	22.31	97.65	57.70	98.64	13.69	98.86	41.92	98.22	6.03	98.87	9.74
45-59	97.14	33.61	97.96	65.79	97.10	22.69	98.48	50.91	97.28	9.69	98.66	18.27
60 and over	71.97	21.49	82.59	49.02	76.55	17.11	84.69	40.48	77.16	8.24	83.33	14.52
All ages (10+)	82.83	20.31	86.12	55.68	80.62	13.00	92.40	41.41	77.24	5.58	84.32	9.36

Appendix 5.1 (cont'd)

AGE-SPECIFIC ACTIVITY RATES

	KHARTOUM				KASSALA				RED SEA			
	URBAN		RURAL		URBAN		RURAL		URBAN		RURAL	
AGE GROUP	M	F	M	F	M	F	M	F	M	F	M	F
10-14	47.22	5.22	50.31	2.17	46.38	7.70	64.37	4.06	49.47	12.34	55.92	4.06
15-24	65.37	8.89	61.46	2.29	65.89	9.01	77.18	4.35	72.35	10.87	66.31	4.35
25-44	96.89	11.42	97.47	2.09	97.27	9.55	97.07	8.52	98.58	9.49	96.40	3.83
45-59	96.78	9.42	94.17	4.36	97.23	12.90	97.27	15.30	96.73	16.64	97.48	7.14
60 and over	70.66	6.61	69.23	4.59	77.81	10.43	83.37	15.60	71.89	12.83	76.66	6.82
All ages (10+)	78.82	9.06	76.44	2.55	79.33	9.42	86.29	7.96	83.53	11.31	83.03	4.63

	NORTHERN				SUDAN			
AGE GROUP	URBAN		RURAL		URBAN		RURAL	
	M	F	M	F	M	F	M	F
10-14	32.30	2.29	37.92	1.44	46.22	6.17	67.72	18.80
15-24	53.65	5.24	53.19	2.38	65.60	8.64	78.42	19.94
25-44	98.20	5.10	97.44	2.49	97.26	11.07	98.23	25.36
45-59	95.90	4.65	96.55	3.83	96.49	14.24	97.71	31.79
60 and over	70.99	3.89	78.53	2.25	73.55	10.87	80.76	25.49
All ages (10+)	70.46	4.45	69.69	2.46	78.89	9.83	86.75	23.74

Appendix 5.2 TABLE 1 : INDUSTRIAL DISTRIBUTION OF LABOUR FORCE (15 AND OVER) BY PROVINCE IN 1973

Industry / Province	Total Economically Active	Agriculture Hunting, etc.	Mining & Quarrying	Manufacturing	Elec.Gas & Water	Construction	Wholesale & Retail Trade	Transport & Storage & Communications	Financing, Insurance, Real Estate	Community Social & Personnel Services	Activities not adequately classified
Bahr El Gazal	444496	345176	31	2477	99	2259	4909	1076	17	22027	66425
Upper Nile	242018	154112	2	2503	1888	2270	5377	1608	38	4063	33587
Equatoria	202857	131578	20	3508	132	5877	7451	3195	26	32944	18130
All South	889371	630866	53	8484	2119	10406	17738	5879	80	95604	118142
Khartoum	347246	68964	251	44876	6333	18973	48252	30120	3104	105876	21197
Blue Nile	975060	715606	219	29129	16725	17985	40477	30935	306	64009	59669
Kassala	452226	304840	2107	16320	3092	9235	29490	27492	691	48093	10866
Kordofan	710837	600664	150	12278	3508	4751	16591	11209	200	47172	14314
Darfur	822966	731780	92	13602	2061	2588	22253	4107	55	33882	12546
Northern	188761	98215	271	7542	1060	7877	11656	20721	144	34811	6384
All North	3497096	2520069	390	123747	32779	60709	168719	124584	4500	333923	124976
ALL SUDAN	4386467	3150935	3143	132231	34898	71115	186456	130463	4580	419527	243118

Source:- 1973 Population Census - Provisional Estimates

Appendix 5.2 (cont'd) TABLE 2 : PERCENTAGE DISTRIBUTION OF THE ECONOMICALLY ACTIVE POPULATION BY INDUSTRY BY PROVINCE

Industry / Province	Total Economically Active	Agriculture Hunting, etc.	Mining & Quarrying	Manufacturing	Elec.Gas & Water	Construction	Wholesale & Retail Trade	Transport & Storage & Communications	Financing, Insurance, Real Estate	Community Social & Personnel Services	Activities not adequately classified
Bahr El Gazal	100	77.7	-	0.6	-	0.5	1.1	0.2	-	5.0	14.9
Upper Nile	100	63.9	-	1.0	0.8	1.0	2.2	0.6	-	16.7	13.8
Equatoria	100	64.9	-	1.7	0.1	2.9	3.7	1.6	-	16.2	8.9
All South	100	70.9	-	1.0	0.2	1.2	2.0	0.7	-	10.7	13.3
Khartoum	100	19.9	-	12.9	1.8	5.3	13.9	8.7	0.9	30.5	6.1
Blue Nile	100	73.4	-	3.0	1.7	1.8	4.2	3.2	-	6.6	6.1
Kassala	100	67.4	0.5	3.6	0.7	2.0	6.5	6.1	0.2	10.6	2.4
Kordofan	100	84.5	-	1.7	0.5	0.7	2.3	1.6	-	6.6	2.1
Darfur	100	88.9	-	1.7	0.3	0.3	2.7	0.5	-	4.1	1.5
Northern	100	52.0	0.1	4.0	0.6	4.2	6.2	11.00	-	18.5	3.4
All North	100	73.7	0.1	3.3	0.9	1.7	4.8	3.4	0.1	9.0	3.4
ALL SUDAN	100	71.8	0.1	3.0	0.8	1.6	4.2	3.0	0.1	9.8	5.5

Source:- Calculated from Table 1 - Appendix 5.2

Appendix 5.2 (cont'd)
Table 3 : % SHARE OF EACH INDUSTRY FROM MALE LABOUR FORCE (15 AND OVER) IN EACH PROVINCE IN 1973

Industry / Province	Total Economically Active		Agriculture Hunting, etc.	Mining & Quarrying	Manufacturing	Elec.Gas & Water	Construction	Wholesale & Retail Trade	Transport & Storage & Communications	Financing, Insurance, Real Estate	Community Social & Personnel Services	Activities not adequately classified
	Total	%										
Bahr El Gazal	352381	100	73.3	-	0.5	-	0.6	1.3	0.3	-	5.4	18.6
Upper Nile	212410	100	60.8	-	1.0	0.9	1.1	2.4	0.7	-	17.5	15.6
Equatoria	180880	100	62.9	-	1.7	0.1	3.2	3.6	1.7	-	16.8	10.0
All South	745676	100	67.2	-	0.9	0.3	1.4	2.2	0.8	-	11.6	15.6
Khartoum	323616	100	20.3	0.1	12.8	1.9	5.6	13.9	9.1	0.8	29.1	6.4
Blue Nile		100	72.3	-	3.0	1.9	2.0	4.4	3.5	-	6.3	6.6
Kassala	886518	100	68.2	0.5	2.9	0.7	2.2	6.5	6.5	0.2	9.8	2.5
Kordofan	420346	100	78.6	-	2.0	0.7	1.0	3.1	2.3	-	8.4	2.9
Darfur	486131	100	83.2	-	2.2	0.4	0.5	4.1	0.9	-	6.1	2.6
Northern	476183	100	52.6	0.1	3.9	0.6	4.4	6.1	11.4	0.1	17.4	3.4
All North	2767043	100	69.3	0.1	3.6	1.1	2.1	5.3	4.2	0.1	10.0	4.1
ALL SUDAN	3512719	100	67.4	0.1	3.2	1.0	2.0	4.8	3.7	0.1	10.8	6.8

Source:- 1873 Population Census - Provisional Estimates

Appendix 5.2 (cont'd)
Table 4 : PERCENTAGE DISTRIBUTION OF THE ECONOMICALLY ACTIVE FEMALE POPULATION BY INDUSTRY IN EACH PROVINCE 1973

Industry / Province	Total Economically Active		Agriculture Hunting, etc.	Mining & Quarrying	Manufacturing	Elec.Gas & Water	Construction	Wholesale & Retail Trade	Transport & Storage & Communications	Financing, Insurance Real Estate	Community Social & Personnel Services	Activities not adequately classified
	Total	%										
Bahr El Gazal	92115	100	94.3	-	0.9	-	0.1	0.3	0.1	-	3.1	1.2
Upper Nile	29608	100	84.5	-	1.1	0.1	0.1	0.5	0.1	-	11.4	2.2
Equatoria	21972	100	81.0	-	1.8	-	0.1	4.1	0.5	-	11.5	1.0
All South	143695	100	89.0	-	1.1	-	0.1	1.0	0.1	-	6.5	1.5
Khartoum	23330	100	13.9	-	14.3	0.7	0.5	14.0	3.3	1.8	49.2	2.3
Blue Nile	88542	100	84.0	-	3.1	0.1	0.1	1.8	0.2	-	9.3	1.4
Kassala	31880	100	56.4	0.1	12.7	-	0.1	7.2	0.6	0.1	22.0	0.8
Kordofan	224707	100	95.1	-	1.2	-	0.1	0.6	-	-	2.8	0.3
Darfur	352783	100	96.5	-	1.0	-	0.1	0.8	-	-	1.4	0.2
Northern	8811	100	40.5	-	6.1	0.1	0.4	7.5	2.6	0.1	40.6	2.1
All North	730053	100	90.2	-	2.1	-	0.1	1.5	0.2	0.1	5.3	0.5
ALL SUDAN	873748	100	89.6	-	2.1	-	0.1	1.5	0.2	0.1	5.8	0.6

Source:- 1973 Population Census Provisional Estimates

Appendix 5.2 (cont'd)
Table 5 : % CONTRIBUTION OF EACH PROVINCE FROM TOTAL LABOUR FORCE IN EACH SECTOR IN 1973

Industry / Province	Total Economically Active	Agriculture Hunting, etc.	Mining & Quarrying	Manufacturing	Elec.Gas & Water	Construction	Wholesale & Retail Trade	Transport & Storage & Communications	Financing, Insurance, Real Estate	Community Social & Personnel Services	Activities not adequately classified
Bahr El Gazal	10.1	11.0	1.0	1.9	0.3	3.2	2.6	0.8	0.4	5.1	27.3
Upper Nile	5.5	4.8	0.1	2.0	5.4	3.2	2.9	1.2	0.8	9.5	3.8
Equatoria	4.6	4.2	0.6	2.6	0.4	8.3	4.0	2.4	0.6	7.7	7.5
All South	20.2	20.0	1.7	6.5	6.1	14.7	9.5	4.4	1.8	22.3	48.6
Khartoum	8.0	2.2	8.0	33.9	18.1	25.7	25.9	23.1	67.8	24.6	8.7
Blue Nile	22.2	22.7	7.0	22.0	47.9	25.3	21.7	23.7	6.7	14.9	24.5
Kassala	10.3	9.7	67.0	12.3	8.9	1.3	15.8	21.1	15.1	11.2	4.5
Kordofan	16.2	19.1	4.8	9.3	10.1	6.7	8.9	8.6	4.3	11.0	5.9
Darfur	18.8	23.2	2.9	10.3	5.9	36.0	11.9	3.1	1.2	7.9	5.2
Northern	4.3	3.1	8.1	5.7	3.0	11.3	6.3	16.0	3.1	8.1	2.6
All North	79.8	80.0	98.3	93.5	93.9	85.3	90.5	95.6	98.2	77.7	51.4
ALL SUDAN	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL	4386467	3150935	3143	132231	34898	71115	186456	130463	4580	919527	243118

Source:- Calculated from Table 1, Appendix 5.2

Appendix 5:3
Table 1 : DISTRIBUTION OF ECONOMICALLY ACTIVE POPULATION BY OCCUPATION BY PROVINCE IN 1973

Occupation / Province	Total Economically Active	Professional, Technical & Related Workers	Administrative & Managerial Workers	Clerical & Related Workers	Sales Workers	Service Workers	Agricultural, Animal Husbandry workers, etc.	Production & Related Workers	Workers not classified by occupation
Bahr El Gazal	444496	986	1821	796	4329	9532	277665	9139	140228
Upper Nile	242018	2815	1671	1280	4969	22113	118357	10638	80175
Equatoria	202857	4257	1921	2410	6204	21080	88848	21894	56237
All South	889371	8058	5419	4486	15502	52725	484870	41671	276640
Khartoum	347246	13127	3014	17710	34544	62068	44851	92730	79202
Blue Nile	975060	15591	927	7509	32184	38985	637271	100804	11789
Kassala	452226	6749	768	6549	20836	32738	289692	62509	32345
Kordofan	710837	5877	463	3678	14102	26392	582528	41487	36310
Darfur	822966	5344	923	1988	19839	17945	717865	30411	28651
Northern	188761	7684	419	4251	9799	17056	9177	39758	19617
All North	3493097	54372	6514	41685	131304	195224	2362384	367699	337914
ALL SUDAN	4386467	62430	11933	46171	146806	247949	2847254	409370	614554

Source:- 1973 Population Census, Provisional Estimates

Appendix 5:3 (cont'd)
Table 2 : PERCENTAGE DISTRIBUTION OF ECONOMICALLY ACTIVE POPULATION BY OCCUPATION BY PROVINCE IN 1973

Occupation / Province	Total Economically Active		Professional, Technical & Related Workers	Administrative & Managerial Workers	Clerical & Related Workers	Sales Workers	Service Workers	Agricultural, Animal Husbandry workers, etc.	Production & Related Workers	Workers not classified by occupation
	Total	%								
Bahr El Gazal	444496	100	0.2	0.4	0.2	1.0	2.1	62.5	2.1	31.5
Upper Nile	242018	100	1.2	0.7	0.5	2.1	9.1	48.9	4.4	33.1
Equatoria	202857	100	2.1	0.9	1.2	3.1	10.4	43.8	10.8	27.7
All South	889371	100	1.0	0.6	0.5	1.7	5.9	54.5	4.7	31.1
Khartoum	347246	100	3.8	0.9	5.1	9.9	17.9	12.9	26.7	22.8
Blue Nile	975060	100	1.6	0.2	0.8	3.3	4.0	65.4	10.3	14.5
Kassala	452226	100	1.5	0.1	1.4	4.6	7.2	64.1	13.8	7.2
Kordofan	710837	100	0.8	0.1	0.5	2.0	3.7	81.9	5.8	5.2
Darfur	822966	100	0.6	0.2	0.2	2.4	2.2	87.2	3.7	3.6
Northern	188761	100	4.1	0.1	2.4	5.2	9.0	47.2	21.0	10.4
All North	3497097	100	1.5	0.2	1.1	3.5	5.3	69.5	9.9	9.0
ALL SUDAN	4386467	100	1.4	0.3	1.1	3.3	5.7	64.9	9.3	14.0

Source:- Calculated from Table 1, Appendix 5.3

Appendix 5.3 (cont'd)
Table 3 : % SHARE OF EACH PROVINCE FROM EACH OCCUPATION OF TOTAL ECONOMICALY ACTIVE POPULATION IN 1973

Occupation / Province	Total Economically Active	Professional, Technical & Related Workers	Administrative & Managerial Workers	Clerical & Related Workers	Sales Workers	Service Workers	Agricultural, Animal Husbandry workers, etc.	Production & Related Workers	Workers not classified by occupation
Bahr El Gazal	1.1	1.6	15.3	1.7	2.9	3.8	9.7	2.2	22.8
Upper Nile	5.5	4.5	14.0	2.8	3.4	9.0	4.1	2.6	13.0
Equatoria	4.6	6.8	16.1	5.2	4.2	8.0	3.1	5.4	9.2
All South	20.2	12.9	45.4	9.7	10.5	21.3	16.9	10.2	45.2
Khartoum	8.0	21.0	25.3	38.4	23.5	25.0	1.6	22.7	12.9
Blue Nile	22.2	25.0	7.8	16.3	22.0	15.7	22.4	24.6	23.1
Kassala	10.3	10.8	6.4	14.2	14.2	13.2	10.2	15.3	5.3
Kordofan	16.12	9.4	3.9	7.9	6.9	10.6	20.5	10.1	5.9
Darfur	18.8	8.6	7.7	4.3	13.5	7.2	25.2	7.4	4.6
Northern	4.3	12.3	3.5	9.2	6.7	7.0	3.2	9.7	3.2
All North	79.8	87.1	54.6	90.3	89.5	78.7	83.1	89.8	55.0
ALL SUDAN	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL	4386467	62430	11937	46171	146806	247949	2847254	409370	614554

Source:- Calculated from Table 1, Appendix 5.3

Appendix 5.3 (cont'd)
Table 4 : DISTRIBUTION OF ECONOMICALLY ACTIVE POPULATION BY INDUSTRY AND OCCUPATION 1973

Industry / Occupation	Total Economically Active	Agriculture Hunting, etc.	Mining & Quarrying	Manufacturing	Elec.Gas & Water	Construction	Wholesale & Retail Trade	Transport & Storage & Communications	Financing, Insurance Real Estate	Community Social & Personnel Services	Activities not adequately defined
Prof., tech & related workers	62430	2595	164	568	343	186	555	581	807	56464	167
Admin., & Manag. workers	11933	589	91	909	69	1216	500	221	313	7951	74
Clerical & Related Workers	46171	5758	124	2460	2679	1159	2677	12884	1335	16749	396
Sales workers	146806	568	60	960	55	62	142944	1397	49	655	26
Service workers	247949	11443	96	3333	4304	2597	18870	14738	651	190768	1149
Agric., animal husbandry, etc.	2847254	2836807	225	966	2083	364	1074	377	39	5065	254
Prod., & related workers	409370	28790	206	111222	12954	56869	15117	86759	414	92188	3049
Workers not classified by occupation	714554	264383	377	11783	12411	8662	4719	13506	973	59687	238053
TOTAL	4386467	3150935	3143	132271	34898	71110	186456	130463	4581	429527	243118

Source:- 1973 Population Census - Provisional Estimates

Appendix 5.3 (cont'd)
Table 5 : PERCENTAGE DISTRIBUTION OF ECONOMICALLY ACTIVE POPULATION BY INDUSTRY AND OCCUPATION 1973

Industry / Occupation	Total Economically Active	Agriculture Hunting, etc.	Mining & Quarrying	Manufacturing	Elec-Gas & Water	Construction	Wholesale & Retail Trade	Transport & Storage & Communications	Financing, insurance Real Estate	Community Social & Personnel Services	Activities not adequately defined
Prof., tech & related workers	1.4	0.1	5.2	0.4	1.0	0.3	0.3	0.3	17.6	13.1	0.1
Admin., & Manag. workers	6.3	-	2.9	0.7	0.2	1.7	0.3	0.2	6.8	1.9	-
Clerical & related workers	1.1	0.2	3.9	1.9	7.7	1.6	1.4	9.9	29.1	3.9	0.1
Sales workers	3.3	-	1.9	0.7	0.2	0.1	76.7	1.1	1.1	0.2	-
Service workers	5.7	0.4	3.1	2.5	12.3	3.7	10.1	11.3	14.2	44.4	0.5
Agric., animal husbandry, etc.	64.9	90.0	7.2	0.7	6.0	0.5	0.6	0.3	1.0	1.2	0.1
Prod., and related workers	9.3	0.9	63.8	84.1	37.1	80.0	8.1	66.5	9.0	21.5	3.1
Workers not classified by occupation	14.0	8.4	12.0	9.0	35.5	12.1	2.5	10.3	21.2	13.8	97.9
All occupations	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	4386467	3150935	3143	132271	34898	71110	186956	130463	4581	429527	243118

Source:- Calculated from Table 4, Appendix 5.3

Appendix 5.4
Table 1 : DISTRIBUTION OF TOTAL ECONOMICALLY ACTIVE POPULATION BY EMPLOYMENT STATUS AND PROVINCE 1973

Employment status / Province	Total Economically Active	Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking work for first time	Unemployed	Workers not classified by status
Bahr El Gazal	444496	797	311037	29789	21481	-	1291	77268	2883
Upper Nile	242018	1709	116080	72474	12045	-	3488	35753	419
Equatoria	202857	630	107052	75161	538	181	406	18577	312
All South	889371	3186	534169	177424	34064	181	5135	131598	3614
Khartoum	347246	7313	93813	225220	2107	371	2337	15621	464
Blue Nile	975060	57797	464576	357492	36248	972	3723	47517	6735
Kassala	452226	13389	250333	145183	25397	447	2428	12987	1063
Kordofan	710837	31869	417846	89049	145556	486	6545	15446	4040
Darfur	222966	11168	567009	50430	172848	470	4232	13988	2821
Northern	188761	6575	88842	77332	9011	189	952	5545	112
All North	3497096	128111	1882419	944706	391177	2935	20217	111107	16435
ALL SUDAN	4386467	131297	2416588	1122130	425230	3116	25352	242705	20049

Source:- 1973 Population Census Provisional Estimates

Appendix 5.4 (cont'd)
Table 2 : DISTRIBUTION OF FEMALE ECONOMIC ACTIVE POPULATION BY EMPLOYMENT STATUS BY PROVINCE 1973

Employment Status / Province	Total Economically Active	Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking work for first time	Unemployed	Workers not classified by status
Bahr El Gazal	92115	92	78113	2303	7738	-	184	2211	1974
Upper Nile	29608	60	19008	6839	2487	-	89	918	207
Equatoria	21972	88	18237	2988	176	-	44	308	131
All South	143690	240	15358	12130	10401	-	317	3437	1812
Khartoum	23330	187	7651	14675	163	47	70	497	140
Blue Nile	88542	3719	39047	33026	9652	86	177	532	2303
Kassala	31880	607	18575	6680	4569	26	360	256	802
Kordofan	224707	5618	97972	7865	10556	-	225	1348	1123
Darfur	352783	1764	209200	5292	134763	-	-	353	1411
Northern	8811	97	3366	3912	1093	9	52	150	132
All North	730052	11992	375811	71455	260796	168	884	3036	5911
ALL SUDAN	873748	12232	491169	83585	271197	168	1201	6473	7723

Source:- 1973 Population Census Provisional Estimates

Appendix 5.4 (cont'd)
Table 3 : DISTRIBUTION OF MALE ECONOMIC ACTIVE POPULATION BY EMPLOYMENT STATUS BY PROVINCE 1973

Employment Status / Province	Total Economically Active	Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking work for first time	Unemployed	Workers not classified by status
Bahr El Gazal	352381	705	232924	27486	13743	-	1057	75057	1409
Upper Nile	212410	1699	97172	65635	9558	-	3399	34835	212
Equatoria	180885	542	88815	72173	362	181	362	18269	181
All South	745676	2946	418811	165264	23663	181	4818	128161	1802
Khartoum	323916	7126	86162	210544	1944	324	2267	15224	324
Blue Nile	886518	54078	425529	324466	26591	886	3546	46985	4432
Kassala	420646	19782	231758	138498	20827	421	2068	12731	1261
Kordofan	486136	26251	319874	81184	35000	486	6320	14098	2917
Darfur	470183	9404	357809	45138	38085	470	4232	13635	1410
Northern	179950	6478	85476	73420	7915	180	900	5398	180
All North	2767043	116119	1506608	873251	130370	2767	19333	108071	10524
ALL SUDAN	3512719	119065	1925919	1038545	154033	2948	24151	236232	12326

Source:- 1973 Population Census Provisional Estimates

Appendix 5.4 (cont'd)
Table 4 : PERCENTAGE DISTRIBUTION OF TOTAL ECONOMICALLY ACTIVE POPULATION BY EMPLOYMENT STATUS BY PROVINCE 1973

Employment Status / Province	Total Economically Active		Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking work for first time	Unemployed	Workers not classified by status
	Total	%								
Bahr El Gazal	444496	100	0.2	69.9	6.7	4.9	-	3.0	17.4	0.6
Upper Nile	242018	100	0.7	97.6	30.1	4.9	-	1.5	15.0	0.2
Equatoria	202857	100	0.3	52.8	37.0	0.3	0.1	0.2	9.2	0.1
All South	889371	100	0.4	60.1	19.9	3.8	-	0.6	14.8	0.4
Khartoum	347246	100	2.1	27.0	64.9	0.6	0.1	0.7	4.5	0.1
Blue Nile	975060	100	5.9	47.6	36.7	3.7	0.1	0.4	4.9	0.7
Kassala	452226	100	3.0	55.4	32.1	5.6	0.1	0.5	2.9	0.4
Kordofan	710837	100	4.5	58.8	12.5	20.4	0.1	0.9	2.2	0.6
Darfur	222966	100	1.4	68.9	6.1	21.6	0.1	0.5	1.7	0.3
Northern	188761	100	3.5	47.1	40.9	4.8	0.1	0.5	2.9	0.2
All North	3497096	100	3.7	53.8	27.0	11.2	0.1	0.6	3.2	0.4
ALL SUDAN	4386767	100	3.0	55.1	25.6	9.7	0.1	0.6	5.5	0.4

Source:- Calculated from Table 1, Appendix 5.4

Appendix 5.4 (cont'd)
Table 5 : SHARE OF EACH PROVINCE IN THE ECONOMIC STATUS OF THE TOTAL ECONOMICALLY ACTIVE POPULATION 1973

Employment Status / Province	Total Economically Active	Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking work for first time	Unemployed	Workers not classified by status
Bahr El Gazal	10.1	0.6	12.9	2.7	5.1	-	4.9	31.8	14.8
Upper Nile	5.5	1.3	4.7	6.4	2.8	-	13.5	19.7	1.9
Equatoria	4.6	0.5	4.4	6.7	0.1	5.8	1.6	7.7	1.6
All South	20.2	2.3	22.0	15.8	8.0	5.8	20.3	54.2	17.9
Khartoum	8.0	5.6	3.9	20.1	0.5	11.9	9.2	4.6	2.3
Blue Nile	22.2	44.0	19.2	31.9	8.5	31.2	19.7	19.6	33.6
Kassala	10.3	80.2	10.4	12.9	6.0	14.3	9.6	5.4	10.3
Kordofan	16.2	24.3	17.3	7.9	34.3	15.6	25.8	6.4	20.2
Darfur	18.8	8.5	23.5	9.5	40.6	15.1	16.7	5.8	14.1
Northern	4.3	5.0	3.7	6.9	2.1	6.1	3.7	2.2	1.6
All North	79.8	97.7	78.0	84.2	92.0	94.1	79.7	45.8	82.1
ALL SUDAN	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL	4286467	131297	2416588	1122130	425230	3116	29352	242705	20049

Source:- Calculated from Table 1, Appendix 5.4

Appendix 5.4 (cont'd)
Table 6 : SHARE OF EACH PROVINCE IN THE ECONOMIC STATUS OF FEMALE ECONOMICALLY ACTIVE POPULATION 1973

Employment Status / Province	Total Economically Active	Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking work for first time	Unemployed	Workers not classified by status
Bahr El Gazal	10.6	0.8	16.0	2.8	2.9	-	15.5	35.0	19.2
Upper Nile	3.4	0.4	3.3	7.0	0.8	-	6.2	12.2	2.3
Equatoria	2.5	0.7	3.7	3.6	0.1	-	3.7	4.9	1.7
All South	16.5	1.9	23.0	13.4	3.8	-	25.4	52.1	23.2
Khartoum	2.7	1.5	1.6	17.8	0.1	28.0	5.9	6.3	1.8
Blue Nile	10.1	30.4	8.0	40.0	3.6	51.2	14.9	8.4	30.0
Kassala	3.6	5.0	3.8	8.1	1.6	15.5	30.4	4.0	10.4
Kordofan	25.7	46.0	20.0	9.5	40.8	-	19.0	21.3	14.6
Darfur	40.4	14.4	42.9	6.4	49.7	-	-	5.6	18.3
Northern	1.0	0.8	0.7	4.8	0.4	5.3	4.4	2.3	1.7
All North	53.5	98.1	77.0	86.6	96.2	100.0	74.6	47.9	76.8
ALL SUDAN	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source:- Calculated from Table 2, Appendix 5.4

Appendix 5.4 (cont'd)
Table 7 : SHARE OF EACH PROVINCE IN THE ECONOMIC STATUS OF MALE ECONOMICALLY ACTIVE POPULATION 1973

Employment Status / Province	Total Economically Active	Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking work for first time	Unemployed	Workers not classified by status
Bahr El Gazal	10.0	0.6	12.1	2.6	8.9	-	4.4	31.7	11.4
Upper Nile	6.1	1.4	5.1	6.4	6.2	-	14.1	14.8	1.7
Equatoria	5.2	0.5	4.6	6.9	0.2	6.1	1.5	7.7	1.5
All South	21.3	2.5	21.8	15.9	15.3	6.1	20.0	54.2	14.6
Khartoum	9.2	6.0	4.5	20.3	1.4	11.0	9.4	6.4	2.6
Blue Nile	25.2	45.4	22.1	31.2	17.3	30.1	19.7	19.9	36.0
Kassala	12.0	10.7	12.0	13.3	13.5	14.3	8.6	5.4	10.2
Kordofan	13.8	22.1	16.6	7.8	22.7	16.5	26.1	6.0	23.7
Darfur	13.4	9.9	18.6	4.3	24.7	15.9	17.5	5.8	11.4
Northern	5.1	5.4	4.4	7.1	5.1	6.1	3.7	2.3	1.5
All North	78.7	97.4	78.2	84.0	84.6	93.9	80.0	45.8	85.4
ALL SUDAN	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	3512719	119065	1925419	1038545	154033	2948	24151	236232	12326

Source:- Calculated from Table 3, Appendic 5.4

Appendix 5.4 (cont'd)
Table 8 : PERCENTAGE DISTRIBUTION OF TOTAL ECONOMICALLY ACTIVE POPULATION BY EMPLOYMENT STATUS BY AGE GROUP 1973

Employment Status / Age Group	Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking job for first time	Unemployed
15 - 19	3.0	5.6	9.4	32.0	52.2	82.6	34.9
20 - 24	5.8	8.0	17.4	18.2	15.0	11.5	20.3
25 - 29	11.3	13.7	21.1	16.5	9.2	3.2	15.6
30 - 34	10.6	12.4	14.2	8.4	5.0	0.9	8.5
35 - 39	13.9	15.8	13.5	9.0	8.0	0.7	7.3
40 - 44	12.3	11.5	8.2	5.3	4.1	0.7	4.5
45 - 49	10.4	9.6	6.2	3.6	3.0	0.3	3.5
50 - 54	9.6	7.6	4.0	2.6	4.1	0.1	3.1
55 - 59	5.8	4.2	2.1	1.2	2.4	-	1.7
60 - 64	6.4	4.9	1.8	1.3	1.5	-	0.5
65+	10.9	7.1	2.1	1.4	5.5	-	0.7
All Ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source:- 1973 Population Census, Provisional Estimates

Appendix 5.4 (cont'd)
Table 9 : PERCENTAGE DISTRIBUTION OF THE FEMALE ECONOMICALLY ACTIVE POPULATION BY EMPLOYMENT STATUS BY AGE GROUP 1973

Employment Status / Age Group	Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking job for first time	Unemployed
15 - 19	4.0	7.0	13.4	19.7	15.8	79.2	30.5
20 - 24	6.4	9.5	20.6	14.6	7.0	10.2	19.5
25 - 29	10.7	14.9	18.9	19.2	9.7	5.4	12.5
30 - 34	9.0	12.2	10.8	11.9	11.0	3.7	7.3
35 - 39	11.5	13.5	10.8	12.6	23.3	1.0	5.2
40 - 44	13.1	11.0	7.8	7.6	2.3	0.3	5.5
45 - 49	10.0	8.9	5.6	5.2	5.3	0.1	6.7
50 - 54	12.6	7.8	4.8	3.8	10.3	-	5.9
55 - 59	4.4	3.9	2.3	1.7	6.3	-	4.1
60 - 64	8.7	5.0	2.6	1.8	3.3	-	3.5
65+	8.6	6.3	2.4	1.9	6.0	0.1	3.3
All Ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source:- 1973 Population Census, Provisional Estimates

Appendix 5.4 (cont'd)
Table 10 : PERCENTAGE DISTRIBUTION OF MALE ECONOMICALLY ACTIVE POPULATION BY EMPLOYMENT STATUS BY AGE GROUP 1973

Employment Status / Age Group	Employer	Own account workers	Employee	Unpaid family workers	Unpaid workers for others	Seeking job for first time	Unemployed
15 - 19	2.9	5.2	9.0	53.4	45.6	82.8	35.1
20 - 24	5.8	7.6	17.1	24.3	15.9	11.6	20.3
25 - 29	11.4	13.4	21.2	12.0	9.2	3.1	15.1
30 - 34	10.7	12.5	14.4	3.7	5.9	0.7	8.5
35 - 39	14.1	15.9	13.7	2.5	4.3	0.7	7.3
40 - 44	12.2	11.6	8.2	1.3	2.8	0.7	4.5
45 - 49	10.5	9.8	6.3	0.8	3.4	0.3	3.6
50 - 54	9.2	7.6	4.0	0.7	1.9	0.1	3.0
55 - 59	6.0	4.3	2.1	0.3	1.3	-	1.7
60 - 64	6.2	4.8	1.9	0.3	4.2	-	0.4
65+	11.0	7.3	2.1	0.7	5.5	-	0.6
All Ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source:- 1973 Population Census, Provisional Estimates

Appendix 7. The Agricultural Workers Survey of 1976/77

Notice: The information collected in this survey is only to be used for research purposes and would be treated as strictly confidential.

Research Area ..... Name of Village .....
District ..... Province .....

Date of Interview .....

---

(1) Full Name of Respondent

(2) Present Age in Completed Years

(3) Place of Birth

(a) Village (b) District (c) Province

(4) Marital Status

(a) Married (b) Not Married (c) Widowed (d) Divorced

(5) Educational Status

(a) No Schooling (b) Khalwa (c) Elementary (d) Above Elementary

(6) Family Composition

Family Members	No.	Age				Educational Level			
		0-7	7-15	15-45	45+		No Education	Primary or Khalwa	Above Primary
Wife Male Children Female " Others									
Total									

(7)i Main Occupation

(a) Farmer (b) Agricultural Worker (c) Shop-owner
(d) Shepherd (e) Others (to be specified)

ii Employment Status:

(a) Employer (b) Own Account Worker (c) Employee
(d) Unpaid Family Worker (e) Unemployed

(8) Do you have a farm? (a) Yes (b) No
If yes, how large is it? ..... feddans

(9) Do you own livestock? (a) Yes (b) No
If yes, give the details

Livestock	Goat	Sheep	Cattle	Camel
Number				

(10) In case you migrate for seasonal work, what do you do with your livestock?

(a) Migrate with them (b) Sell them
(c) Leave them with part of the family
(d) Leave them with others

(11) Do you have any member of your family away from home for a period more than six months?
(a) Yes (b) No

If yes, give the details

No.	Name of Migrant	Age at time of migration	Educational level	Destination area	Nature of job	Monthly Income (LS)	Absent Period (years)
1							
2							
3							
4							
.							
.							

(12) Have you or any member of your family ever contributed in any seasonal work outside your village?
(a) Yes (b) No

If yes, give the details

Year	Region of Migration	Nature of job	Total Family members contributed		Average daily work in hours	Average daily earnings		Absent Period in months
			Male	Female		in Cash	in Kind	
1964								
1965								
1966								
1967								
1968								
1969								
1970								
1971								
1972								
1973								
1974								
1975								
1976								

(13) What do you think is the best way to increase seasonal migration?

(14) How do you consider the current wage level in agriculture?

(15) In case you migrated for seasonal work, did you receive any help?

(a) Received no help (b) By the help of farmers
(c) By the help of the Scheme
(d) By the help of pickers' sheikh

(16) i What means of transport did you use?
(a) Walking (b) Truck (c) Train

ii Who paid the cost of transport?

(17) i Did you receive any payment in advance from the farmer or the Scheme?

(a) Yes (b) No

ii If yes, how much? LS .....

iii Was it a loan or a gift? .....

(18) When you migrate for seasonal work do you sign a contract with the farmer?

(19) When the seasonal operation is complete:

(a) Where do you go?.....

(b) Who pays the cost of the journey? ....

(20) What do you think are the main advantages of seasonal migration?

(21) What are its main disadvantages?

(22) Do you use any agricultural machinery in your farm?

(a) Yes (b) No

(23) What were the crops you cultivated in your farm in 1975?

(24) What was the total output of each crop?

(25) Will you help us to know your income from the following sources.

Source of Income	Value (LS)
Agriculture and Livestock Seasonal Work Other Sources	
Total:	

General Remarks .....

.....

.....

Interviewer's Signature .....

Appendix 9 Calculation of Marginal Product of Labour

Village	Y	$aX_1^b X_2^c$
Ain El Liwaiga	2878	$a\ 1191^b \times 15450^c$
El Fatirab	645	$a\ 155^b \times 5250^c$
El Timait	1263	$a\ 307^b \times 4650^c$
El Babanosa	2995	$a\ 598^b \times 6150^c$
Wed El Obeid North	10636	$a\ 2081^b \times 29950^c$
El Digairab	1370	$a\ 211^b \times 5120^c$
Wed El Obeid South	5105	$a\ 553^b \times 7650^c$
Arabas	2693	$a\ 190^b \times 4500^c$
Abu Digin	11887	$a\ 654^b \times 9150^c$
El Sharafa	5240	$a\ 1324^b \times 9600^c$
El Ogaila	6887	$a\ 1769^b \times 32550^c$
Abu Sid	13020	$a\ 3643^b \times 58200^c$
All Villages	64619	$a12676^b \times 188220^c$
	Log Y	$= \text{Log } a + b\text{Log } X_1 + c\text{Log } X_2$
Ain El Liwaiga	3.459	Log a + b 3.076 + c 4.189
El Fatirab	2.809	Log a + b 2.190 + c 3.720
El Timait	3.101	Log a + b 2.487 + c 3.667
El Babanosa	3.476	Log a + b 2.777 + c 3.789
Wed El Obeid North	4.026	Log a + b 3.318 + c 4.475
El Digairab	3.136	Log a + b 2.324 + c 3.709
Wed El Obeid South	3.708	Log a + b 2.743 + c 3.884
Arabas	3.430	Log a + b 2.278 + c 3.653
Abu Digin	4.075	Log a + b 2.815 + c 3.961
El Sharafa	3.719	Log a + b 3.123 + c 3.982
El Ogaila	3.838	Log a + b 3.247 + c 4.512
Abu Sid	4.115	Log a + b 3.561 + c 4.765
All Villages	4.81	Log a + b 4.1 + c 5.275

Log a = 1.6325, b = 0.86194, c = 0.1232

MP_L = 0.023

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